

American Aviation

The Independent
Voice of
American Aeronautics

15c
A Copy

Vol. 4, No. 12

Published Twice a Month

Nov. 15, 1940

\$3.00 a Year

Fortnightly Review

Where To, Gentlemen?

CONGRESS has some questions to answer. They concern air mail pay, and they result from the unwieldy situation that has developed during the past several weeks over the refusal of that body to appropriate funds for the payment of rates set by the Civil Aeronautics Board.

First, American Export Airlines failed to get \$500,000 from Congress for the inauguration of trans-Atlantic air mail service. Then the sum of \$585,000, to cover certain retroactive payments to TWA, ordered by the CAB, was thrown out of a bill.

In 1938, Congress created the Civil Aeronautics Authority. It instructed the CAA, among other things, to "foster sound economic conditions" in air transportation. The Act was also hailed as taking the politics out of aviation.

The CAA was, in effect, to be the representative of Congress in the aviation industry. Its five members were to exercise their best judgment, as representatives of Congress, in promoting and regulating the industry. Presumably Congress would be guided by their actions.

We say "presumably." Evidently that body does not intend to be so guided. The Civil Aeronautics Board can turn out rate decisions until doomsday and still get nowhere if Congress refuses to appropriate necessary funds.

This poses the question which has been asked many times in the past few weeks: Where does this lead?

We don't know the answer. The CAB doesn't know the answer. The fact remains that if this general attitude is to prevail on the

(Turn to page 20)

Pressure on Mfrs. Requires Change in Production Methods

AIRLINE PRIORITY COMMITTEE FORMED

Will Coordinate Transport Production With National Defense Needs;
Capt. Sydney Kraus Named
Administrative Officer

Stating that "a healthy commercial air transport system is an important adjunct to a strong national defense," the recently-formed Priorities Board on Oct. 26 announced the establishment of a Commercial Aircraft Priority Committee.

Purpose of the committee, which is composed of representatives of the aircraft industry, Army, Navy and National Defense Advisory Commission, is to "coordinate production and maintenance of commercial air transport equipment with the requirements of the national defense program."

Members of the committee include: Capt. Sydney M. Kraus, representing the production division of the Defense Commission, administrative officer; Col. John H. Jouett, president of the Aeronautical Chamber of Commerce, representing the aircraft industry; C. R. Smith, president of American Airlines, representing the transportation division

(Turn to page 12, col. 3)

Asks 12,000 Bombers



William S. Knudsen

Commissioner of the Advisory Commission to the Council of National Defense whose proposal calls for 12,000 bombers for the U. S. and the organizing of the auto industry for cooperation with existing military manufacturers. (Story in col. 4, this page.)

United Institutes Industry's First Employees' Pension Plan

Will Become Effective Jan. 1 if Accepted by Company Personnel; Past Service to Be Recognized

The air transport industry's first employees' pension plan was announced Nov. 1 by W. A. Patterson, president of United Air Lines, who stated that it had been approved by the company's board of directors and would become operative Jan. 1, 1941, following acceptance by company personnel.

In order to be eligible for participation in the plan, personnel must have been with United one year. Women and pilots must be 25 years of age, and all other employees 30. The plan is designed to supplement benefits under the Federal Social Security Act.

"Recognizing the value of old age security and the responsibility of management today in seeing such security is provided personnel in addition to other employee benefits, United's management has developed this employees' retirement plan," Patterson said.

(Turn to page 25, col. 2)

Current and Potential Orders Bring Detroit Group Into Industry

THE tumult of the election having subsided, leaders of the aircraft manufacturing industry looked forward to developments in coming weeks of new programs along several lines.

Coming forth, it was predicted, would be a program for 20,000 more planes for the Army Air Corps; probably 5,000 more for the Navy and progress in mass production of planes by the auto industry.

Also in the plans is a 12,000-plane order for the British, adding up to a total new production almost equaling that already underway in U. S. plants.

Observers see in this tremendous demand on the aircraft industry a new development in U. S. plane manufacturing methods which may entail a change in the production system to resemble the system now used by Germany.

In Germany, the aircraft industry is actually divided into two categories:

(1) A development industry which manufactures and tests new models—making 100 to 1,000 for development purposes—and

(2) A mass production industry which turns out accepted "frozen" models by the thousands.

As the new program unfolds, it appears that the present aircraft industry may approximate Germany's development industry, while the automobile industry may become the mass production industry.

The next four years are expected to be the most important in the history of American aviation. Next year will show the greatest expansion yet experienced by both aircraft manufacturing and airline operation. Simultaneously, it will be the year when aircraft manufacturing will enter the field of mass production.

From the political viewpoint, this tremendous augmentation of aeronautical manufacturing facilities will enable the U. S. to build the strongest air defense in the world and at the same time provide the capacity to furnish aircraft at a faster rate and in larger volume to other countries.

More Aid to Britain

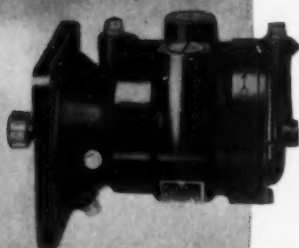
Forecast too is increased aid to the British, including not only sales of aid

(Turn to page 24, col. 1)

PESCO



*Diaphragm Type
Fuel Pump*



Vacuum Pump



Hydraulic Pump



Anti-Icer Pump



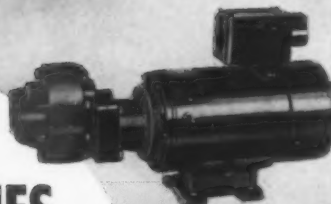
VITAL ACCESSORIES for MODERN AIRCRAFT

More than 400 different aircraft pumps and accessories have been designed and manufactured by Pesco engineers and craftsmen. Many of these units are standard equipment on the nation's finest military and commercial aircraft and figure prominently with American planes and engines wherever men fly.

Pesco engineers are prepared to develop similar equipment for an ever increasing variety of requirements.



Hydraulic Cylinder



*Propeller
Feathering Pump*



Four-Way Valve



*Pressure
Accumulator*



*Hydraulic Flow
Equalizer*

PUMP ENGINEERING SERVICE CORPORATION

DIVISION BORG-WARNER CORPORATION

12910 TAFT AVENUE

CLEVELAND, OHIO, U. S. A.

WIDESPREAD USE OF DIESELS SEEN

50-Passenger Diesel-Powered Planes
Ample for Next 10 Years in Trans-
Oceanic Service, Author Says

The more universal adoption of the Diesel aircraft engine is only a matter of time, according to Paul H. Wilkinson, author-engineer, in his new book, "Aircraft Diesels," just released by Pitman Publishing Co.

Wilkinson, who visited Diesel aviation centers in Germany, France and England just before the war, and who spent considerable time at the Junkers factories, forecast that 50-passenger Diesel-engined airliners will be ample for trans-Atlantic service for the next 10 years.

"Already thousands of these engines have been installed in military airplanes in Germany and soon there will be hundreds of them in civil airplanes transporting passengers, mail, express and freight," the author said. "As larger airplanes are built and longer routes are opened, the need for the Diesel becomes increasingly acute. Advantages such as greater freedom from fire hazard, lower fuel operating cost and increased payload capacity are so overwhelming that no progressive nation can afford to neglect the development of this new type of powerplant."

In addition to these advantages, Wilkinson also claimed that Diesels offer greater efficiency, increased reliability, greater adaptability and improved installation.

Among improvements which will have to be made before Diesels will be universally accepted, Wilkinson listed: increase in specific power output, engine speed, mechanical efficiency, thermal efficiency and aerodynamic qualities, and decrease in specific weight, specific fuel consumption, frequency of overhauls, maximum cylinder pressure and cost of production.

More Earning Capacity

When comparing the revenue earning capacities of the 50-passenger and the 100-passenger trans-oceanic airliners which have been proposed, "it is seen that there is relatively little to be gained from the use of 100-passenger airliners," the author said. "The 50-passenger airliner, which costs considerably less to build and operate, is a much more attractive investment, particularly when it is equipped with Diesels which give it nearly 50% more revenue earning capacity than when it is equipped with gasoline engines."

"Fleets of 50-passenger Diesel-engined airliners of this type should be ample for trans-oceanic service for the next 10 years provided they are augmented by fast Diesel-engined catapult mailplanes which can maintain air mail service in all kinds of weather. Diesel-engined airships filled with helium appear to be the most suitable type of aircraft for non-stop flights in excess of 4,000 miles."

Although having a slower cruising speed, the airship has a greater flight range and payload capacity and can offer far more spacious passenger accommodations than airliners, Wilkinson said. "When filled with non-explosive helium and powered with Diesels using non-explosive fuel oil, the airship is a safe and economical means of trans-oceanic transportation," he added.

Comparing a four-engine 50-passenger plane equipped with 90-octane gasoline engines with one equipped with Diesels, Wilkinson stated that on a 3,400-mile trans-oceanic hop, there would be a saving of \$310 in fuel operating cost in favor of the Diesel-powered craft. Over a course of 50

Board Member of Bank



Frank F. Russell
President of National Aviation Corp., on Nov. 7 was elected a director of the Bank of the Manhattan Co. Russell is also a director of National Aviation, Lockheed Aircraft Corp. and Bell Aircraft Corp. He is a graduate of Milton Academy and Yale.

flights, this saving would amount to \$15,500, he pointed out.

"It is also seen that due to the smaller fuel load required by the Diesel-engined airplane, its payload capacity is increased by 6,140 lbs., and its revenue earning capacity is increased by \$14,490 for each flight," he said. "Assuming that 50 flights were completed by each airplane in one year, the yearly earning capacity of the Diesel-engined airplane would be \$2,204,500 compared with \$1,480,000 for the gasoline-engined airplane. The additional revenue of \$724,500 should pay for the cost of the Diesel-engined airplane in one year."

Regular transcontinental and trans-oceanic service with Diesel-engined planes has given Deutsche Lufthansa "a premier position in the air transportation field," the author claimed. "Relatively greater payloads have been carried with Diesels than with gasoline engines and fuel operating costs have been considerably lower."

"All of these short-range, medium-range and long-range flights have been accomplished with Diesels of from 600 to 700 hp. When more powerful Diesels are available for civil aircraft with power outputs of from 1,000 to 2,000 hp., Deutsche Luftansa will proceed with the Dieselization of its air fleet for the transportation of passengers, mail, express and freight."

Asphalt Group Eyes Airports

The part that asphalt will play in the national defense program of airport and highway development will be an important subject in discussions at the 13th National Asphalt Conference at Dallas, Tex., Dec. 9-14.

'We in Canada are Challenged . . .'

Challenge offered by U. S. aircraft production progress to Canadian industry is editorialized in current issue of *Commercial Aviation*, Canadian trade publication. While suggesting that there are some within the British Empire who are "inclined to minimize the contribution which the U. S. can give in the present crucial struggle," the commentary asserts, "an extensive tour to the leading aircraft plants in the U. S. convinces you of one thing—America has gone to work in no uncertain terms!"

"There is no doubt whatever as to the contribution which (U. S.) firms . . . will make to the cause of Britain and the Empire. We in Canada are challenged by this to produce in quantity and quality for Empire defense. It has been shown many times over that we will receive practical cooperation from America . . . The question is, 'Are we wise enough to cooperate in vital production here?' Sometimes we wonder . . . Are we going to sweep the cobwebs away and get down to a real honest-to-goodness production basis or are we going to continue to muddle in aircraft building?"

Calendar

- Nov. 22-24—2nd Annual Snowbird Gilder Contest, Harris Hill, Elmira, N. Y.
- Nov. 29-Dec. 2—Air Line Pilots Association, Annual Convention, Congress Hotel, Chicago, Ill.
- Dec. 9-14—13th National Asphalt Conference, Adolphus Hotel, Dallas, Tex.
- Dec. 17—Wright Brothers Lecture for 1940, "Recent Fog Investigations," by Dr. Sverre Pettersen, Columbia University, New York, N. Y.
- Dec. 17—Dedication of Washington National Airport, Washington, D. C.
- Jan. 6-10—Annual Meeting and Engineering Display, Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich.
- Jan. 10-12—1941 All-American Air Maneuvers, Miami, Fla.
- Jan. 29-31—9th Annual Meeting of the Institute of the Aeronautical Sciences, Columbia University, New York, N. Y.
- Feb. 15-23—8th Annual National Sportsmen's Show, Grand Central Palace, New York, N. Y.
- Feb. 22-Mar. 2—3rd Annual International Sportsmen's Show, International Amphitheater, Chicago, Ill.
- Mar. 3-7—American Society for Testing Materials, Maydower Hotel, Washington, D. C.
- Aug. 25-Sept. 2—3rd Annual American Open Soaring Contest, Joliet, Ill.

Maj. Clay to CAA; Administrator Directs Airport Section

Maj. L. D. Clay, Corps of Engineers, has been assigned to duty in the office of Administrator of Civil Aeronautics, according to Maj. A. B. McMullen, chief of the CAA's airport section.

Maj. Clay will serve as secretary to the Army-Navy-Commerce board which will determine the priority of airports and landing fields to be developed, and as liaison officer between the Administrator and the various federal agencies.

"The airport section of the CAA, which hitherto has been concerned with much research work, in addition to its routine duties of planning and directing airport development . . . will be removed from the technical development division and placed directly under the Administrator," Maj. McMullen said.

"This move is calculated to increase the speed of processing and clearing projects within the Administration. One unit of the section will remain in the technical development division to carry on development and experimental work connected with airport facilities, such as lighting, paving and marking."

Lecture Subject Revealed

"Recent Fog Investigations" will be the subject of Dr. Sverre Pettersen, professor of meteorology at Massachusetts Institute of Technology, who will present the fourth Wright Brothers Lecture at Columbia University, New York City, Dec. 17.

AIRLINES AWARDED COLLIER TROPHY

High Safety Record Cited; NAA Gives Special Recognition to Aviation Medicine Workers

For their high record of safety in air travel, the airlines of the U. S. have been awarded the Collier Trophy for outstanding service to aviation during the year 1939, according to announcement made Nov. 15 by the National Aeronautic Association.

In making the award, the NAA gave special recognition to Doctors Walter M. Boothby and Walter R. Lovelace II, of the Mayo Foundation for Medical Research and Education, and to Capt. Harry C. Armstrong, U. S. Army Medical Corps, Wright Field, "for their contribution to this safety record through their work in aviation medicine in general and pilot fatigue in particular."

Members of the 1939 Trophy committee included: Dr. George W. Lewis, NACA, chairman; Maj. Gen. H. H. Arnold, Deputy Chief of Staff, War Dept.; Jacqueline Cochran, noted aviatrix; Donald W. Douglas, president of Douglas Aircraft; William R. Enyart, vice president of NAA; Grover Loening, aviation consultant; Capt. E. V. Rickenbacker, president of Eastern Air Lines; L. P. Sharples, treasurer of AOPA, and Frank Tichenor, aviation publisher.

President Roosevelt is expected to make the award in person at the White House early in December.

NAA Appoints Legal, Executive Committees

Executive and legal committees have been appointed by the board of directors of the National Aeronautic Association.

Members of the executive committee, which will meet monthly to formulate NAA operating policies between the quarterly meetings of the full board of directors, are: William R. Enyart, New York, NAA vice-president; Thomas H. Beck, New York; Charles Boettcher, II, Denver; Col. John H. Jouett, Washington; A. I. Lodwick, Williamsport, Pa.; A. H. Near, Louisville, Ky.; Thomas F. Ryan, III, Kansas City, Mo.; and James E. Webb, Brooklyn.

The legal committee, which will advise the board and general manager on legal matters, consists of George B. Logan, St. Louis; William P. McCracken Jr., Washington; and Stanley T. Wallbank, Denver.

La Guardia Field Highway Link Appropriation Made

The New York Board of Estimate has authorized the expenditure of not more than \$120,000 on preliminary work in connection with two proposed projects designed to create a connecting highway, two and one-half miles long, to complete the linking of La Guardia Field with the Queens approaches to the new Queens Midtown Tunnel under the East River.

The two projects, which are to cost an estimated \$7,200,000, will, when completed, bring the airport within 20 minutes of midtown Manhattan area by automobile.

Airport Begun at Spokane

Construction of a new 1,000-acre airport three miles west of Spokane, Wash., has been started by the WPA, with completion expected within five months.

The field, to be known as Sunset Airport, will have two sets of parallel runways, eight in all, cement bound, each 150 feet wide with 75-foot shoulders and strips graded to a full 500-foot width.

News in Pictures



When Air Associates Inc. moved from its factory at Roosevelt Field, L. I., recently to a new half-million-dollar plant at Bendix Airport, N. J., a United Air Lines Mainliner was used to make a 15-minute transfer of company officials from the old plant to the new. Gov. A. Harry Moore of New Jersey is shown welcoming F. Leroy Hill, president of Air Associates, as he stepped from the Mainliner.



Bill Basden (left) and Claude d'Hemecourt, Braniff Airways agents at Brownsville, Tex., got out an adding machine and started stacking pennies at the border city's international airport when passenger Warren C. Smith laid down 2,800 pennies for his ticket to Dallas. Smith, who manages a company distributing coin-operated machines, rushed to the plane without taking time to bank the pennies.



Robert B. Lea, vice president of Sperry Gyroscope Co., left; I. M. Taylor, export manager of the Aeronautical Chamber of Commerce, center, and J. S. Allard, vice president of Curtiss-Wright Corp., pictured in Los Angeles for the west coast export conference of the Aero Chamber when 20 conferees flew by chartered Western Air Express plane to San Diego for an inspection tour of the Consolidated, Ryan and Solar plants.



The Army Air Corps at March Field, Cal., took a half holiday from serious national defense preparations recently to sign up the first real wooden soldier in history. Charlie McCarthy, center, donned the uniform of the Air Corps in the current drive to boost enlisted strength to 95,000. Joining the colors with the full knowledge and consent of his famous NBC creator, Edgar Bergen, right, Charlie was flown to March Field by Bergen himself. At left is Col. Benjamin G. Weir, commander at March.

Aggressive' U. S. Interests Will 'Swallow' Aviation in Canadian Yukon, Paper Warns

The fast-growing commercial aviation business in the Canadian Yukon will be "swallowed" by "aggressive" U. S. interests unless Canadian authorities act promptly, according to a recent story in the Vancouver, B. C., Sun.

Because of the fact that Seattle-Juneau schedules are often "in trouble on account of uncertain weather," the "smart American companies" are planning to drop the coastline service in favor of "an overland super-plane direct from White Horse to Seattle," the paper claims.

"This is a traffic which, from all the standpoints of physical advantages,

rightfully belongs to Canada," the story said. "White Horse is the natural assembly point for the feeder lines. From there the route should be all-Canadian, southeast across the great interior tableland, marked by low rainfall and vastly superior flying conditions."

The paper urged governmental authorities to "go completely modern" in their conception of the B.C.-Alaska highway proposal, and install airways at the same time.

"Anyway, our American friends will have taken it over if we don't act quickly," it concluded.

Goodyear Aircraft Granted Contracts for Six Blimps

Contracts totaling \$1,324,000 for six non-rigid airships for patrol and training purposes have been awarded Goodyear Aircraft Corp., Akron, O., by the Navy Dept.

The blimps constitute the first of 48 non-rigid airships authorized as part of the "10,000 Plane Program" for expansion of naval aeronautics.

U. S. & Canada to Increase

Trainer Output for British

To allow British factories to concentrate on types of aircraft needed for home defense, Canada and the U. S. will supply about twice the number of training planes they were originally scheduled to provide for the British Commonwealth air training plan, Malcolm McLean, special assistant to Canadian Air Minister, stated, Oct. 30.

The air training program was earlier described as ahead of schedule, with 48 of the 83 planned centers expected to be in operation by end of 1940. The RCAF was reported to have 23,980 airmen and 2,218 officers, with 17,000 volunteers waiting to be called.

Mascuch Denied Parole

Motion for parole of Joseph J. Mascuch, former president of Breeze Corps, Inc. who was convicted Nov. 29, 1939, for perjury before the SEC, has been denied by Judge J. W. Clancy of U. S. District Court, New York. Mascuch had pleaded that his services were important to national defense but he was ordered to begin serving his two-year sentence.

CAB Building Presented

The new \$400,000 Civil Aeronautics Board building at La Guardia Field, N. Y., has been officially turned over to Robert Hinckley, assistant secretary of Commerce. The two-story structure will house CAB offices in the north half of the building, while seven CAB planes will be based in the hangar which occupies the south half.

'America' to Smithsonian

A scale model of the "America," first seaplane designed to cross the Atlantic, has been added to the historic planes collection of the Smithsonian Institution, Washington, D. C. The plane, built by Glenn Curtiss for the late Rodman Wannamaker, had a wing spread of 74 feet. It never actually crossed the ocean.

Total Air Defense Appropriations

Following is an official break-down of all funds appropriated by the present session of the 76th Congress for aviation defense:

1. Army, total Direct Appropriations and Contract Authorizations . . .	\$ 8,792,145,145
2. Navy, total Direct Appropriations and Contract Authorizations . . .	3,537,138,137
3. Civil Activities contributing to national defense and neutrality enforcement, cash and contract authority.	776,944,646

Total defense commitments 17,092,227,930

Army & Navy:

These appropriations include funds for the following aviation materiel: 35,000 serviceable airplanes—25,000 for the Army, 10,000 for the Navy. Provide additional production facilities, including new plants and extension of existing plants, for accelerating immediate programs and to supply potential continued and augmented demands. Establish and develop new Army and Navy air bases and stations. Provide for varied collateral expenses, including aviation facilities and storage. The appropriations also provide for increasing military and naval personnel as follows:

Raises enlisted strength, Regular Army, including Philippine Scouts, from 227,000 to 375,000.

Raises strength National Guard (officers and men) from 210,000 to 346,130 and employees on active service.

Inducts and trains minimum of 695,990 draftees.

Increases Army Reserve officers on extended active duty from 3,555 to 55,592.

Raises enlisted strength, Regular Navy, from 145,000 to 170,000, including 10,000 volunteer naval reservists to active duty.

Increases Naval Reservist officers on extended active duty from 800 to 3,269, plus 5,000 Reserve midshipmen.

Increases Naval Reserve men on extended active duty from 436 to 628 plus 5,351 reservists in student pilot training.

Raises enlisted strength of Marine Corps from 25,000 to 34,000.

Increases Marine Corps Reservist officers on active duty from 214 to 252.

Increases training of pilots and airplane mechanics.

Civil Agencies:

These appropriations include funds for the following aviation defense projects by civil agencies:

Housing, for allocation by President to Army, Navy, and Maritime Commission	\$100,000,000
Housing for defense industry workers, to be allocated by Federal Works Agency	150,000,000
CAA Pilot Training	32,000,000
Airport Development, Commerce Dept.	40,000,000
Recruiting, placing, training, and preparation of workers for defense industries, PSA	110,000,000
Strategic and critical materials, Treasury Dept.	47,500,000
Coast Guard	31,395,544
Dept. of Justice, including FBI	14,091,800
Public works not classified, including NACA laboratory	31,044,000
(These data are official, reported by the House Appropriations Committee.)	

Off the Beam

BECAUSE E. R. PERRY left his job with Talon Inc. to join Boeing Aircraft, AMERICAN AVIATION's copy desk was tempted to write "From Zippers to Clippers" over the story on page 25.

MAJ. ALEXANDER P. de SEVERSKY, famous racing pilot and plane designer, will write his analyses of war developments from the standpoint of aviation, weekly for the United Press. No specific schedule has been set for the articles.

THE "BALTIMORE" is now the official name of the new medium bomber the Glenn L. Martin Co. will turn out in volume for the British government. The announcement was made from New York by Air Commodore C. B. A. BAKER of the British Purchasing Commission. Heretofore, the scanty reference to the new ship has been by the unromantic Martin numerals, "111." Originally, it had been intended that the new bomber would be called the "Montreal," but Commodore Baker explained the name would have little meaning and the decision was made to change it to "Baltimore" to honor the city of its origin.

FRANK GANNETT of the Gannett Newspapers, Rochester, N. Y., has purchased Vaulchuse Aviation Corp.'s Lockheed 12, according to Manager EARL E. BACH of the Roosevelt Field organization. Bach also reports that Vaulchuse will take delivery on Jan. 3 of a new Lockheed Lodestar.

PRIOR TO THE OUTBREAK of war there were only two or three shops in the entire Dominion of Canada capable of turning out highly complicated gauges to a precision of one ten-thousandths of an inch, according to the Dominion's director of public information. Today there are some 50 shops across Canada engaged in the production of "master" gauges of high precision. While most of the gauge design and original drawings have been done in England, a large number of gauges have been designed and drawn, and "tone" of blueprints turned out in Canada, it was said.

SINCE the advent of the defense program, Eastern Air Lines' flying personnel supervisors have been deluged with applications from World War flyers, some of whom have not been in a cockpit for more than 20 years. Thinking EAL is hard put to find pilots, the veterans believe themselves qualified to take over.

UNTIL YOU MAKE an air trip through South America you have no idea of the red tape connected with getting visas for each country you plan to visit. Pan American Airways finds it necessary to have a passport department for the convenience of passengers. The man who runs this department is the New York office's Harry A. Millen. He knows all the answers. If it weren't for Millen, we're afraid many passengers (and company officials) would never make the plane.

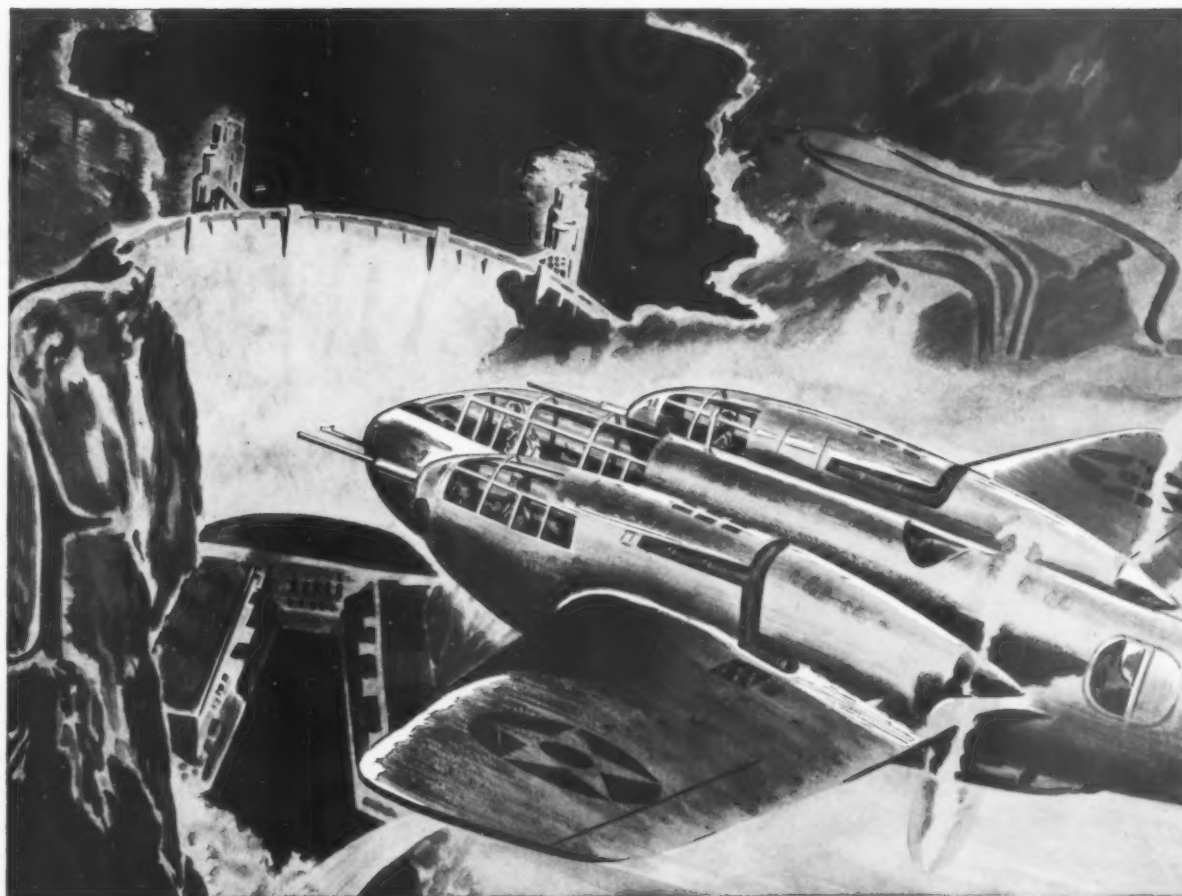
PROTEST FIELD SALE

Floyd Bennett Field Aviation Ass'n Will Oppose Rumored Transfer to Navy

The rumored purchase of Floyd Bennett Field by the U. S. Navy will be protested by the Floyd Bennett Field Aviation Association, according to Sidney Ross, a member of the executive committee of the organization.

The 500 pilots and airport employees at the field plan a mass "protest" flight of 100 private planes over New York City when the association has definite information concerning the sale, it was said.

Sale of the field would leave 250 private planes with no base in or near New York, and would throw the 300 persons out of work, Archie Baxter, secretary to the Brooklyn Chamber of Commerce, is quoted as saying. He pointed out that the field is aiding in the national defense by training 200 student pilots under the CAA program, and added that the sale would be a "strategical error."



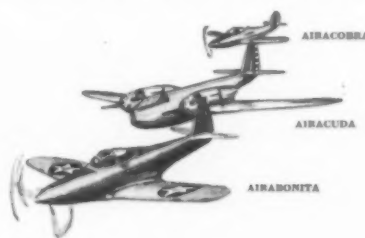
THE WEALTH WE VALUE MOST

All the dollars in all the pockets of America are a puny treasure compared with this. For the wealth we value most is the incalculably rich land we live on, and our freedom to utilize it for such benefits of peace as the epic dam at Boulder.

In a war-rocked world, America prepares to guard this land with hard thinking and straight action. Results alone count, and speed is all-essential.

No part of the armament we are forging is more vital than the defensive airplane. To the improvement and production of this weapon in its several forms, the Bell Aircraft Corporation has dedicated all its facilities.

A milestone of progress in the strengthening of our defensive forces is the new Bell Airacuda, one of the most potent weapons yet developed against aerial invasion. Designed for long range patrol and escort duty, this twin-engined multi-seater fighter plane is a product of collaboration with U. S. Army pilots and it is now in service with the U. S. Army Air Corps.



BELL

AIRCRAFT CORPORATION, BUFFALO, NEW YORK



Mfg. Industry Shows 400% Employment Gain In 2-Year Period

A 400% increase in aviation manufacturing employment during the last two years was reported in figures submitted by Secretary of the Treasury Morgenthau to President Roosevelt recently.

Employees grew from 28,700 in Sept. 1938 to 50,600 in Sept. 1939 and doubled to 118,800 by Sept. 1940.

Broken down the report shows employment in plants on the Atlantic seaboard was 14,000 in Sept. 1938; 25,000 in Sept. 1939; and reached 54,800 in Sept. 1940. In the mountain, central and southern states, employment gained from 2,200 in Sept. 1938, to 3,600 in Sept. 1939 and trebled to 11,500 in Sept. 1940. The three Pacific states employed 12,500 in Sept. 1938; 22,000 in Sept. 1939; and 52,500 last month.

New Employment Peak Set By U. S. Aircraft Industry

Employment in the aircraft industry reached another new peak during September with an estimated 108,400 wage earners, according to the Department of Labor. The figure represents an increase of 9,000 over August and 84,400 over the 1937 average.

Using 1923-25 as 100, Sept. 1940 aircraft employment was 3871.3, compared with 3550 for Aug. 1940 and 1760.7 for Sept. 1939. Using the same index, aircraft pay rolls during Sept. 1940 were 4251.2; Aug. 1940, 3813.1; and Sept. 1939, 1706. In both employment and pay rolls, aircraft continued to show the largest gain among U. S. industries.

Portland Airport Dedicated
New Portland-Columbia airport at Portland, Ore., has been dedicated, replacing the Swan Island airport as operating base for United Air Lines and Northwest Airlines.

31 Non-Airline Fatal Accidents in Sept.

There were 31 non-airline fatal accidents in Sept. 1940 compared with 19 in the corresponding month last year, according to statistics released recently by the CAB's safety bureau.

It was pointed out, however, that there are 84,500 certificated pilots now, compared with 58,701 a year ago.

Most fatal accidents occurred in the non-controlled flying group, the CAB claimed. In September "there were 67,500 in this . . . group and 17,000 in the controlled or CPTP group." It is said. "In September, 1939 there was one fatal accident to every 3,155 persons engaged in private flying. Last month there was one fatal accident to every 2,799 . . ."

The CAB said it was not satisfied with the existing safety record. "Of the 31 accidents which occurred during September, over 50% could have been easily avoided by attention to maintaining adequate flying speed as a protection against stalls and spins; being cautious when near revolving propellers, and remaining on the alert for obstructions to flight, such as trees and high tension wires," it said.

Wright Course Attracts 100

More than 100 representatives of the Army, Navy, Coast Guard, other government agencies and commercial airlines attended the semi-annual lecture course in aircraft engine maintenance and engineering, Oct. 14-18, in service school of Wright Aeronautical Corp., Paterson, N. J.

Interspersing the lectures given by personnel of Wright and accessories manufacturers were frequent inspection trips through the Wright factories and visits to Caldwell-Wright airport and Curtiss Propeller Division at Clifton, N. J.

McKenna to U. S. Plywood

Norbert A. McKenna, former general partner of Eastman, Dillon & Co., will become vice-president and director of United States Plywood Corp. In his new post, McKenna will be in charge of molded plywood plastic products, now being used increasingly in the aircraft industry.

Now Being Delivered in Canada



New Douglas attack-bombers, originally ordered by the government of Norway, are now being delivered—in Canada. This was disclosed on Oct. 29 by officials of Douglas Aircraft Co. who announced the first three BA-5's in an order for 36 were in flight to Toronto for delivery to Norwegian military units. The attack-bombers were built in the company's El Segundo, Cal., plant, with deliveries scheduled for completion before close of the year.

While Douglas officials were frank to admit the new planes are being flown to Toronto, Norwegian representatives would not elaborate on this statement,

nor discuss their plans for putting the ships into service.

Export version of Douglas attack-bombers now in use by the U. S. Army Air Corps, the BA-5 is the latest in a series previously purchased by Peru and Iraq.

Powered by a 1,200-hp. Wright Cyclone, the craft has a top speed in excess of 265 mph., with service ceiling of nearly 32,000 ft. One of the most formidable of its type, the plane is armed with seven machine guns, and although primarily an attack ship, it has substantial bomb capacity.

Australia Orders 11 PBV's

Australia has ordered 11 additional PBV flying boats from Consolidated Aircraft Corp. at cost of 1,000,000 pounds, including spares. Delivery is expected before the year-end. The latest order together with seven similar craft earlier purchased will replace Sunderland flying boats, recently transferred to the RAF, for long range reconnaissance.

New Montreal Airport

Transfer of all civil aviation operations from St. Hubert Airport, Montreal, Que., to new field at nearby Dorval is expected next summer. St. Hubert, now used by Trans-Canada Air Lines, Canadian Colonial Airways and Boston-Maine Airways, will be turned over to RCAP.

Two Aircraft Plants Hit by Labor Unrest

One of two labor disputes which threatened to tie up defense production in aircraft factories on both coasts appeared to be settled as this issue goes to press, but another was still being eyed anxiously by the Defense Commission.

At Brewster Aeronautical Corp., Long Island City, N. Y., plant where as A. F. of L.-C. I. O. jurisdictional dispute had retarded production of 50 airplanes for the Navy, the two labor groups have agreed to abide by the decision of the N. L. R. B. in regard to the bargaining agency for truck drivers delivering materials to the factory.

At the Vultee Aircraft, Inc. plant at Downey, Cal., a wage controversy which has been developing for several weeks brought a serious strike threat with the announcement by C. I. O.-U. A. W. Regional Director Lou Michener that workers in the plant had voted 2,500 to 52 in favor of a walkout unless the union demand for an increase in the minimum wage is met. The union's initial demand for a boost in the minimum wage from 50 to 75 cents was later reduced to 65 cents.

Two Labor Dept. conciliators are on the scene, and Defense Commission officials declared that "every means possible" was being used to avert a strike.

Plane Tire Output Declines

U. S. manufacturers in 1939 turned out 30,405 airplane tires with factory value of \$544,823 and 27,192 airplane inner tubes worth \$104,961, a preliminary report recently released by the Bureau of the Census reveals. Previous census of manufacturers shows output in 1937 of 32,710 airplane tires valued at \$667,965 and 25,026 tubes estimated at \$101,912 at factories.

Argentina Civil Air Reserve

Appeal for 5,000 pilots to be organized and trained as a civilian air reserve as part of rearmament program was issued by the Argentine government, Nov. 3. The government would supervise the training to be accomplished under private initiative. Present Argentine Air Force has 600 planes, according to unofficial source.

Civil Service Exams Listed

Announcement of examinations for associate and assistant aeronautical inspectors under the Civil Aeronautics Authority and associate air-carrier inspector under the Civil Aeronautics Administration has been made by the Civil Service Commission.

Enjoy a New Dining Thrill!

at the newly redecorated
KITTY HAWK
Room

OVERLOOKING LA GUARDIA FIELD
Open All Year

• This new, sumptuous restaurant gives you more than just food well served; it provides an impressive view of the runways of the field and giant airships soaring aloft. Open for luncheon, dinner and supper daily.

CIRCULAR BAR DANCING NIGHTLY
Complete Dinners from \$1.00
Complete Luncheons from 75¢
Cocktails from 25¢

•
Also Open
the beautiful new
AVIATION TERRACE
Luncheon • Dinner • Supper • Dancing

THE COFFEE SHOP
for speedy table and counter service.
Breakfast, luncheon, dinner.

Management HOTEL NEW YORKER
New York

No Running Start Needed

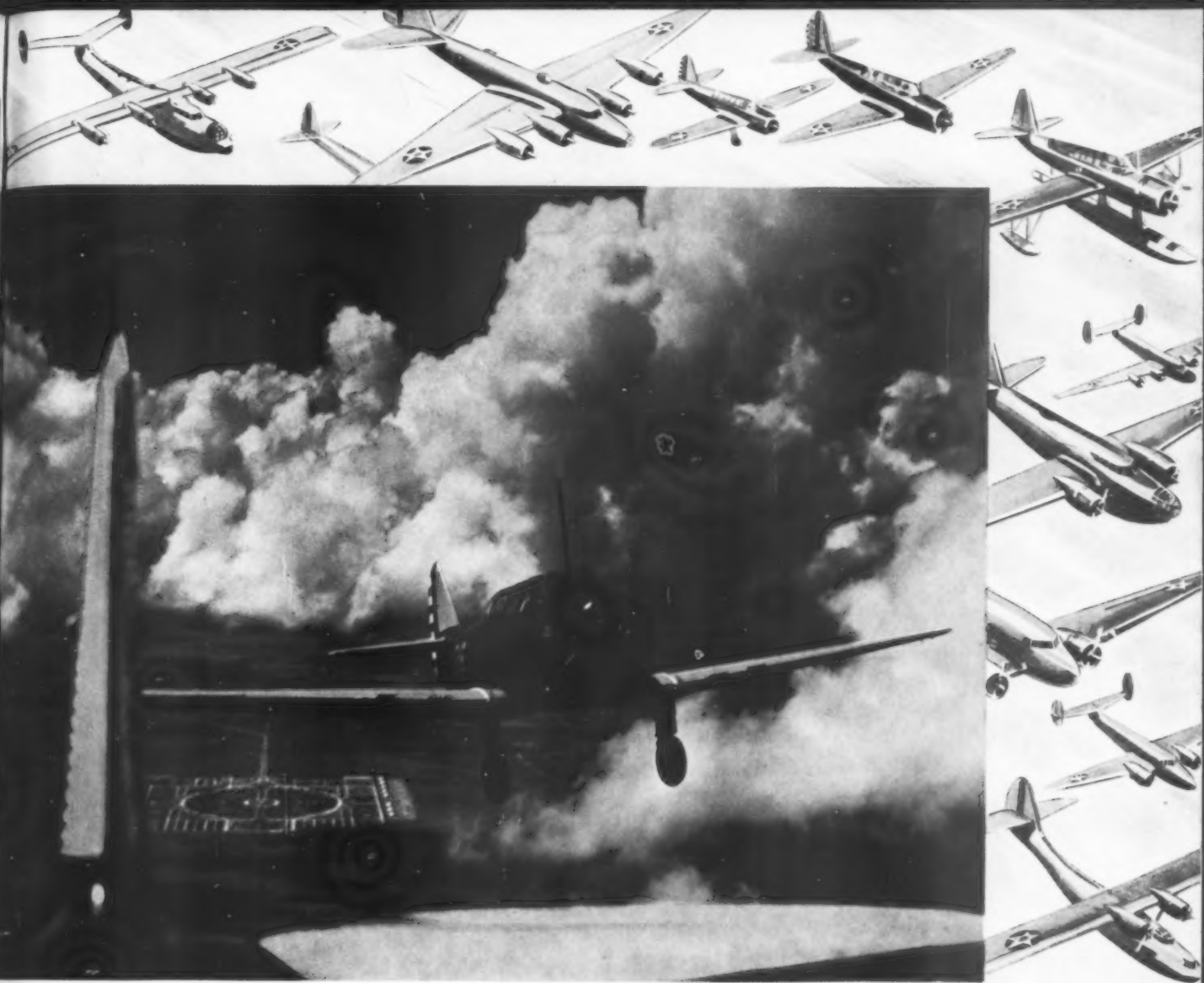


Considerable interest in the jump take-off autogiro, manufactured by Pitcairn Autogiro Co., Willow Grove, Pa., was shown by government representatives, including Army, Navy and Coast Guard officials who watched the PA-36 in the face of stiff wind extend its normal vertical jump of 25 feet into almost continuous ascent during flight demonstrations in Washington, D. C., Oct. 17-21. Also impressed favorably by the hurdling ability of the PA-36 from a "standing start" were members of the Department of Justice, whose Border Patrol Division is guardian of the Mexican frontier, and the Department of Agriculture, which for several years has been using autogiros in survey and plant quarantine work.

The PA-36 is a two-place, side-by-side, cabin type, powered by a seven-cylinder, radial, air-cooled Warner en-

gine of 175 hp. The three blades of the rotor may be folded back over the horizontal tail surfaces when the craft is aground, thus reducing hangar space required or permitting the giro to be driven down a highway.

Significant improvement over previous commercial models is the jump takeoff feature by which the PA-36 rises vertically 25 feet or more as illustrated above, then pulls away in a normal climb, taking-off for horizontal motion in mid-air. Preparatory to the jump, a hydraulic single-control lever locks the wheel brakes, sets the rotor blades at zero pitch and engages the rotor clutch for power to the rotor. Then the pilot advances the throttle and when full power is reached, with rotor turning 300 revolutions a minute, the mere pressing of a lever causes the craft to leave the ground.



Thousands of Propellers

FOR NATIONAL DEFENSE

To each successive group of cadets reporting at Army and Navy training centers, Hamilton Standard Propellers quickly become a familiar sight. From their early days on basic trainers to the time when they emerge as pilots of mighty four-engined bombers, a large part of their flying life is spent behind the flashing blades designed and manufactured by Hamilton Standard.

For the great fleets of airplanes now being built for national defense, large quantities of propellers are needed. Hamilton Standard is making them by the thousands...and making them faster than ever before in history.



HAMILTON STANDARD PROPELLERS

ONE OF THE THREE DIVISIONS OF
UNITED AIRCRAFT CORPORATION • EAST HARTFORD, CONNECTICUT



America's Fastest ★

UP, UP, UP go the speeds of America's military airplanes . . . and this Vought-Sikorsky fighter is being hailed as the fastest of them all. Equipped with a Double Wasp air-cooled engine, the most powerful ever installed in a fighter, this sleek airplane possesses an unusually low drag coefficient. Its resultant tremendous speed is combined with long range, and the ability to land safely on the limited area of an aircraft carrier's deck. It was designed and built

for the United States Navy, and points the way for new achievements by this class of aircraft.

While designers, draftsmen and engineers were creating this airplane, production has been going swiftly ahead on quantity orders for Vought-Sikorskys of other types. This example of simultaneous development and production is typical of the methods that have made Vought-Sikorsky famous in the Navy for over twenty-three years.

VOUGHT-SIKORSKY AIRCRAFT



STRATFORD, CONNECTICUT

ONE OF THE THREE DIVISIONS OF UNITED AIRCRAFT CORPORATION

Per

The
severe
mediate
with r
given b
on Nov
the Au
Cent
ville, V
ing Se

The
port th
ord, we
plane v
of light
mal eff
crew v
effects
tical sh
produc
change
plane.
none o
ning w
the acc

"We
ning m
the pil
resultin
have su
tical sh
smashes
have c
structur
through

The r
fire tha
ing the
opinion
rainfall
the acc
was no
sion th
buted t

"In v
suasive
was cau
mechan
rainfall
turbule
major
record,"
has been
flying t
time of
improb
could a
before

"It is
volunta
seat oc
thrown
account
pilots t
been lo
consider
ing the
any per
to occup

John
Donald
manag
ing the
just beh

Light
"Espe
of pers
other pr
we are
dence o
ning fla
imity to
diate de
report o
pression
metal a
by light
suits an
lightnin
effect u
in the p

Penn-Central Accident Caused by Lightning, CAB Report Finds

The disabling of the pilots "by a severe lightning discharge in the immediate neighborhood of the airplane, with resulting loss of control," was given by the Civil Aeronautics Board on Nov. 2 as the probable cause of the Aug. 31 crash of a Pennsylvania-Central Airlines DC-3 near Lovettsville, Va., killing 25 persons, including Sen. Ernest Lundeen.

The Board said in its 87-page report that "upon the evidence of record, we cannot conclude that the airplane was struck by the usual type of lightning which produces a thermal effect; that the airplane or its crew were injured by any electrical effects of lightning other than acoustical shock; or that lightning itself produced any turbulence which changed the flight attitude of the plane. We, therefore, conclude that none of these phenomena of lightning were related to any cause of the accident.

"We do think it possible that lightning may have temporarily blinded the pilots or that the pressure wave resulting from the lightning may have subjected the pilots to acoustical shock or concussion; may have smashed the cockpit windows, or may have caused other damage to the structure and controls of the airplane through mechanical effect."

The report concluded that the only fire that occurred took place following the impact. It also expressed the opinion that the effect of the heavy rainfall could not alone have caused the accident, and added that there was no evidence to justify a conclusion that sabotage caused or contributed to the crash.

"In view of the absence of persuasive evidence that the accident was caused by structural failure . . . mechanical failure . . . fire, heavy rainfall or sabotage, we are left with turbulence and lightning as the two major possibilities on the present record," the Board said. "While it has been found that the airplane was flying through turbulent air at the time of the accident, it seems highly improbable that turbulence alone could account for the loss of 5,000 ft. before recovery of level flight.

"It is possible, of course, that involuntary interference by the jump-seat occupant, who may have been thrown into the cockpit, could have accounted for the inability of the pilots to regain control once it had been lost. (The Board has under consideration a regulation prescribing the technical qualifications of any person who may be permitted to occupy the jump seat.)"

John B. Staire Jr., secretary to Donald Duff, PCA's district traffic manager in Washington, was occupying the jump seat, which is located just behind the pilots' seats.

Lightning Evidence Weighed

"Especially in view of the absence of persuasive evidence indicating any other probable cause of the accident, we are greatly impressed by the evidence of the coincidence of the lightning flash seen to be in close proximity to the airplane and the immediate descent of the airplane," the report continued. "Nor is this impression altered by the fact that all-metal aircraft are commonly struck by lightning with no injurious results and that the character of the lightning discharge, as well as its effect upon the airplane and crew, in the present instance must be re-

garded as an extremely unusual occurrence."

The report discussed and analyzed four general effects of lightning: thermal, electrical, optical and mechanical and stated that the latter probably caused the accident.

"If the particular discharge of lightning with which we are concerned . . . were of a nature to produce a strong pressure wave, the pilots might have suffered from acoustical shock or concussion of a severity depending upon the proximity of the lightning to the cockpit and whether or not the cockpit windows were open," it said. "Experience has revealed that such pressure waves have produced severe concussion upon human beings which might result in unconsciousness."

The report also said that the plane "must have entered a torrential downpour of rain at the time of, or immediately following, the flash of lightning in its vicinity, and if the cockpit windows had been smashed in, the pilots might have been subjected not only to the violent impact of flying pieces of glass but also to a withering stream of water striking them with all the force of the airplane's speed through the air of 180 mph. and upwards. The smashing of the cockpit windows as a result of an unusually powerful lightning discharge near the nose of the plane with a consequent serious interference with the pilot's control . . . remains a possibility."

Extent of Storm

Concerning the storm, the Board noted that it extended a very considerable distance north of the plane's path, and for several miles to the south, and "presumably it appeared to the pilot as he examined the horizon that there would be no gain in passenger comfort or otherwise by any detour of practicable extent, and no hazard in flying straight through.

The Board said that "no reason has been discovered for believing that Trip 19 should not have been dispatched on Aug. 31, 1940."

It was emphasized that "nothing within the ordinary range of experience, and no combination of events of which the occurrence could be regarded as at all likely, would have sufficed to produce this accident."

Recommendations made in the report were as follows: (1) the possible effects of lightning upon aircraft should be the subject of continued research, (2) there should be a continuation and accentuation of research on atmospheric turbulence, (3) methods should be developed for collecting and correlating the ex-

Assists Wilson



Morris & Ewing

Clarence E. Fleming

Assistant to the president and air mail manager of TWA, who has been promoted to assistant to T. B. Wilson, chairman of the board of directors. Fleming will continue to act as air mail manager. He has had over 15 years' experience in air transportation.

periences that airplane pilots may have with exceptional turbulence, or other unusual atmospheric conditions, and (4) "where pilots encounter conditions not shown in the latest weather report for the area or in any forecast, including those cases in which they encounter turbulence of what appears to them very exceptional intensity, their observations should be transmitted to the nearest available Weather Bureau office at the earliest possible moment."

C & S Prints First Airline Newspaper

A 12-page newspaper, containing the name of each passenger and his destination in the front-page headline, is now being distributed aboard all Chicago & Southern Air Lines' planes.

The newspaper, said by the company to be the only one "edited especially for those who fly," contains information and pictures about passengers, flight crews, stewardesses, cities along the C&S route, etc. A total of 10,000 copies is published monthly.

Passengers receive copies of the paper from the stewardess after the plane takes off. The personalizing of the passenger's name, destination and business, is printed across the four-column sheet by a patented and copyrighted process.

Printing is done for C&S by Chas. Dan Publishing Co., Memphis, who also sell the advertising space to both local and national advertisers. The paper is edited by George E. Bounds, C&S advertising director.

New KLM Representative

The KNILM, Royal Netherlands Indies Airways in charge of management of KLM Royal Dutch Air Lines for the duration of the war, has announced that KLM representatives in New York, G. H. Ravelli and A. A. Boon Hartmanck are no longer connected with the Royal Dutch Air Lines. United States representative is now P. C. Aronstein, 25 Broadway, New York City, until the former KLM management in The Hague is able to direct affairs again.

Inland Will Re-hire Draftees

Inland Air Lines' employees conscripted for military training will regain their positions upon completion of service period, M. W. Landes, vice-president, has announced. Similar statement was issued by United Air Lines to its employees Sept. 24.

10 DIE IN UTAH TRANSPORT CRASH

Failure of Beam May Have Caused United Accident

Failure of the radio beam may have been the cause of the crash of an eastbound United Air Lines' DC-3 in the early morning of Nov. 4, near Salt Lake City, resulting in the death of seven passengers and the three crew members. It was the second fatal air transport accident in nine weeks.

The UAL ship, approaching Salt Lake from San Francisco in a heavy, wet snowstorm, crashed in the Wasatch Mountains near Centerville, 10 miles north of Salt Lake.

United's trip 11 westbound at approximately the same time reported that it was receiving only "A" signals from the Salt Lake beam, and that "N" was not coming through. UAL officials expressed the opinion that this failure may have caused the accident.

Pilot of the plane was Capt. Howard Fey of Oakland, Cal. His first officer was Thomas E. Sandegren of Tacoma, Wash., and Evelyn Sandino of Oakland was stewardess. Among the passengers were Mr. and Mrs. L. Wilson of Maywood, Ill. Wilson was employed as a mechanic for United in Chicago.

Jerome Lederer and Frank Caldwell, of the Civil Aeronautics Board's safety bureau, left Washington for the scene of the crash on Nov. 4.

John Walker Heads Airlines Terminal

John B. Walker, United Air Lines' regional traffic manager, has been elected president of Airlines Terminal Inc., New York City, and W. S. Allen, who was manager of the aviation exhibit at the World's Fair, has been named manager and secretary-treasurer.

The airline terminal, located at 42nd and Park Ave., New York, will be ready for occupancy in December, Walker said.

Charles A. Miller of Pan American Airways was elected vice president, and the following directors were named: Paul Brattain, Eastern Air Lines; Charles Speers, American; William McGrath, TWA, Walker and Miller.

INLAND NAMES TWO

Schenck Handles Advertising, Publicity; Nichols Is Auditor

C. E. Schenck has been appointed advertising and publicity director for Inland Air Lines, and R. K. "Penny" Nichols has joined the staff as auditor, according to a recent company announcement.

The advertising and publicity post is a new one in the Inland organization. Schenck, whose former home was at Great Falls, Mont., will be located at Casper, Wyo., as will Nichols.

Airline Ad Stresses Defense

"Ready-Made for Defense" is the apt description of the domestic airline system in a full-page newspaper advertisement signed by C. R. Smith, president of American Airlines, and appearing in cities from coast-to-coast recently. Thirty-three cents out of every dollar received by American Airlines during first eight months of 1940 were spent for aircraft, engines and related equipment, the ad states, while 30.6% of company's net income in that period will be paid to the government as federal taxes.

CCA Reduces Fare

Canadian Colonial Airways on Nov. 1 reduced one-way New York-Niagara Falls fare from \$17.95 to \$12.50, and round-trip fare from \$32.30 to \$23.20. The company's intrastate operation, started without a certificate, is being challenged by the Civil Aeronautics Board. A trial on the question is to be held at a date to be set.

Jamieson Greets Veteran



Eastern Air Lines' Capt. Leland Jamieson, who piloted the inaugural Silverliner from Miami to St. Louis recently, marking new air service to the latter city, shakes hands with Hugh Robinson Sr. who years ago flew the first air mail out of St. Louis.

TS
AST

Winter
any

ect. 2
uct. 2
ts. 2
ort. 2
g. 2
1, and
nister
top. 2

U. S.
Bolam

winter
t. 2
delay
use of
company
ing in
nister
n-stay
yload
would
winter
e new

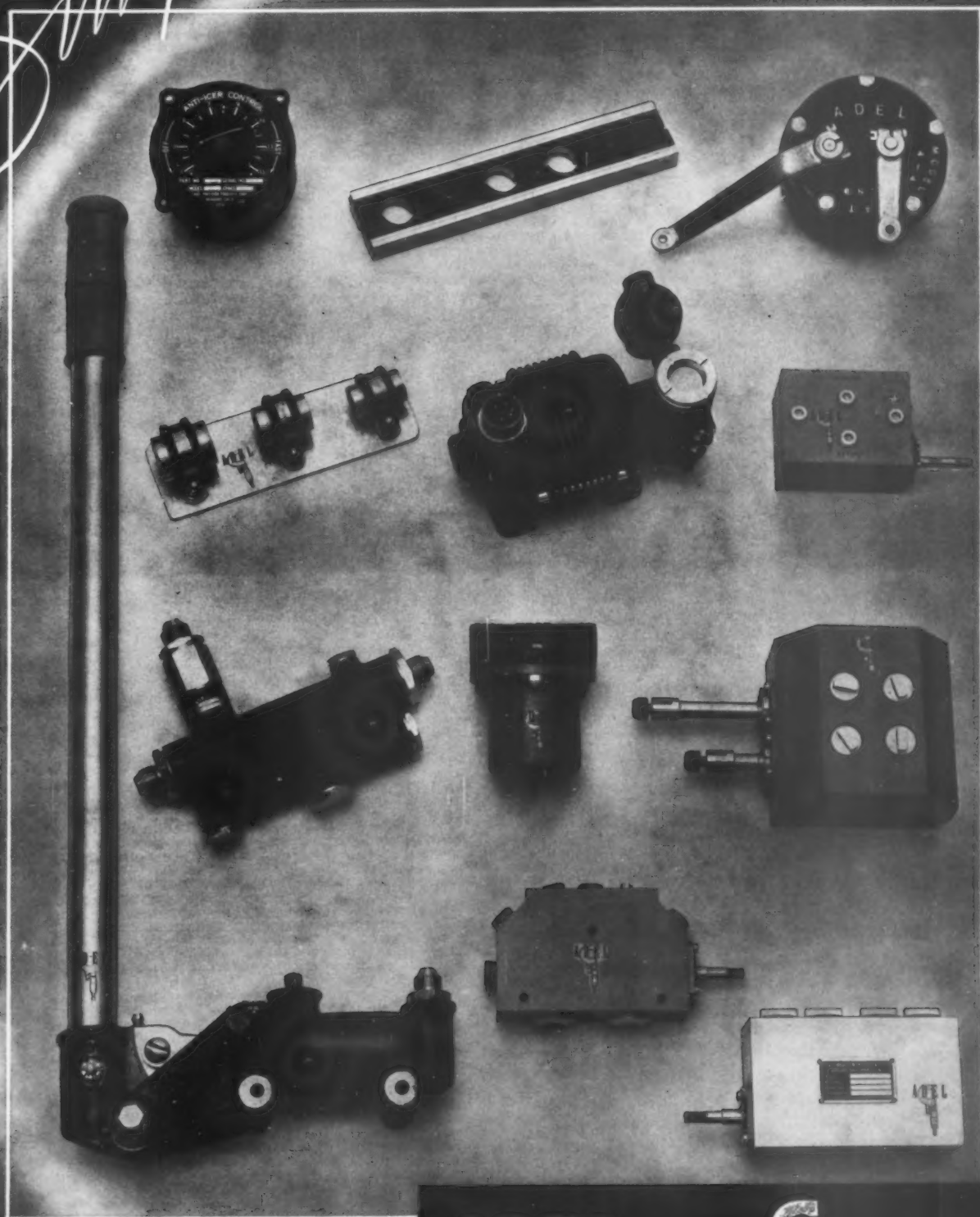
a gen
d in
tiant
on of
f more
Liber
Be
es that
winter
a such
pres
thoug
a less
greater

come
3,800
Asbon
Solam
d time
on the
low op
would

it has
ue op
made
uld go
tes.

ed

Simplicity



Eastern Engineering Sales Representative

J. HENRY REISNER
Hagerstown, Maryland

ADEL

PRECISION

PRODUCTS CORP.

231 SOUTH OLIVE AVENUE, BURBANK, CALIFORNIA

United Expands Express Dept.

The increased use of air express as a means of increasing company revenues is being stressed by United Air Lines, which has materially expanded its express-mail-freight department, under the supervision of Charles P. Graddick, department director.

Russell LeBrock is department general manager who will continue to handle all matters pertaining to operating problems. The following managers have been appointed for divisional areas: eastern division, E. L. Dare, who has been traffic representative at Newark; central area, Paul E. Burbank, who joins UAL from an industrial position, and western area, Alvin L. Mitchell, of the San Francisco traffic department. L. H. Avila will be department representative of the San Francisco Bay area.

"These managers, in addition to pointing out advantages of air express to important shippers, will devote a major portion of their time working with representatives of the Air Express Division of the Railway Express Agency," UAL states.

In addition to Graddick and LeBrock, the department's staff in Chicago will include Glyn Johns, traveling representative; James H. Harger, assistant to Graddick, and Paul Oechner, of LeBrock's office.

Pointing out that air express revenue this year will be about \$625,000, and air mail \$3,800,000, United is urging its employees to "think cargo business.... talk cargo business with friends and business associates."

The company stresses the fact that its 1939 air express revenue approximately equaled its entire net profit from operations.

EAL Dedication



Laurance S. Rockefeller, a director of Eastern Air Lines, in top photo is shown speaking at the ceremonies attendant to dedication of the Eastern Air Lines Bldg., 14th and last of the structures in Rockefeller Center, New York City, to be completed. Left to right: Mayor Fiorello H. La Guardia; Thomas F. Armstrong, EAL secretary-treasurer, and Capt. Eddie Rickenbacker, president and general manager of Eastern. David Rockefeller, of Mayor La Guardia's secretariat, is on the extreme right.

Lower photo shows part of the throngs witnessing the ceremonies in which the new EAL building was dedicated. Mayor La Guardia at the microphone.

'New Horizons' for PAA System

Published by and for the personnel of Pan American Airways System, *New Horizons*, slick-sheeted successor of *Pan American Air Ways* which circulated among PAA employees since 1930, made its initial appearance in October. In magazine format, the generously illustrated publication will serve as a source of information and a medium for news exchange among the system's 6,469 employees stationed in 55 countries throughout the world, and will be distributed on the PAA fleet of 151 planes.

Virginia Company Applies for Three Routes in Intrastate Pick-up System

Permission for scheduled transportation of mail and property using the Cabot pick-up system over several routes within Virginia is sought in application of Aero Pickup Service Corp., Norfolk, Va., filed with Civil Aeronautic Board, Oct. 29.

Routes requested are: Route A, 283 miles, Norfolk to Roanoke via Suffolk, Franklin, Emporia, Lawrenceville, South Hill, South Boston, Danville and Martinsville; Route B, 371 miles, Norfolk to Roanoke via Hampton, Newport News, Williamsburg, Petersburg, Richmond, Charlottesville, Waynesboro, Staunton and Lexington; Route C, 159 miles, South Washington to Staunton via Winchester, Strasburg, New Market and Harrisonburg.

The applicant proposes to operate one round trip daily over each route, except Sundays and holidays, and plans to acquire for the service two used Stinson Reliants for \$4,000, one used Waco YK9 at \$3,500, and one used Bellanca, for reserve, at \$1,500, each craft capable of cruising "not less than 100 mph."

Officers of Aero Pickup, which was incorporated in New York 1929 and in Virginia 1931, are Archie W. Card, president, treasurer and chairman of the board of directors; William E. Gatewood, vice president, and Marion G. Card, Secretary. Since organization in 1929, company has spent \$72,048 in experimental work, the application discloses. Cost of operating all proposed

American Export Airlines Asks 2 U.S.-Central American Routes

Two new mail-passenger express routes, totaling 3,414 miles, between the United States and Central America, to be operated with two four-engined landplanes, were sought Oct. 28 in an application filed with the Civil Aeronautics Board by American Export Airlines Inc.

The routes include (1) New Orleans to Panama City via Guatemala City, San Salvador, San Jose and Cristobal, a distance of 1,947 miles, and (2) New Orleans to San Jose via Belize, 1,467 miles.

Trips would leave New Orleans on Tuesdays and Saturdays over the first route, and on Thursdays over the second. In the opposite direction departures from Panama City would be Mondays and Fridays over the first, and Wednesdays over the second.

Filing of the application followed by less than a month Export's announcement that it had purchased TACA, large Central American airline. Export stated at that time that it planned a large-scale entry into Latin American aviation fields.

Export's new application will probably be strongly opposed by Pan American Airways, which has asked for routes between New Orleans and Guatemala via Merida, and between Cristobal and New Orleans via Havana.

Discussing the four-engined landplanes, Export stated: "The type of plane which will be used has not yet

been definitely selected by the applicant but it is expected that it will have seating capacity for approximately 30 passengers. It is estimated the cost of each of such planes, fully equipped, will be approximately \$350,000."

If awarded the routes, Export estimates that it will need \$2,000,000 additional capital.

During the first year, the company estimates that its net operating loss before U. S. mail pay, income taxes and interest, will be \$841,000 (revenues, \$463,000; expenses, \$1,304,000). In the second year, loss would be \$700,000 (revenues, \$594,000; expenses, \$1,294,000). A total of 2,500 passengers, bringing revenue of \$327,000, is expected in the first year, and 3,250 passengers bringing \$425,000 in the second year.

2 Flights Conducted over AE's Proposed Line

Two experimental flights over the proposed New Orleans-Central American route were operated Oct. 27 and 28 by American Export Airlines.

Both flights were operated by TACA Central American airline recently acquired by American Export. The TACA Lockheed was said to have been the first foreign flight ever cleared from New Orleans.

The return trip on Oct. 29 delivered New Orleans morning newspapers in Guatemala at 9:00 am. and in Panama at 1:00 pm.

Boston-Maine, Braniff Report DC-3 Order

Orders for nine Douglas DC-3 transports totaling \$1,125,000 have been announced by Boston-Maine Airways and Braniff Airways. Boston-Maine, which now operates Lockheed Electras, has contracted for three 24-passenger craft at \$125,000 unit cost, to be placed in service by June 1941, according to Paul F. Collins, president.

Braniff is scheduled to take delivery on six additional 21-passenger DC-3 planes next May at total cost of about \$750,000. Braniff now operates eight DC-3's and six DC-2's.

Exemption Granted PAA

Pan American Airways Inc. and travelers thereon have been granted permission to proceed into and through the combat area between Lisbon and African ports as defined by presidential proclamation, June 11, 1940, according to Department of State announcement.

Hanger for Plains Airways

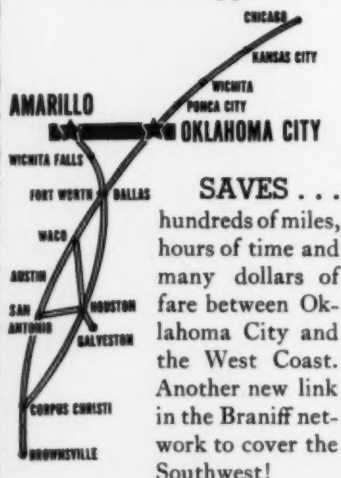
Plains Airways, Cheyenne, Wyo., has been granted city council permission to erect a \$15,000 brick hanger at municipal airport. The one-story building 90 x 80 ft., will include office and plane overhaul facilities.

What Next?

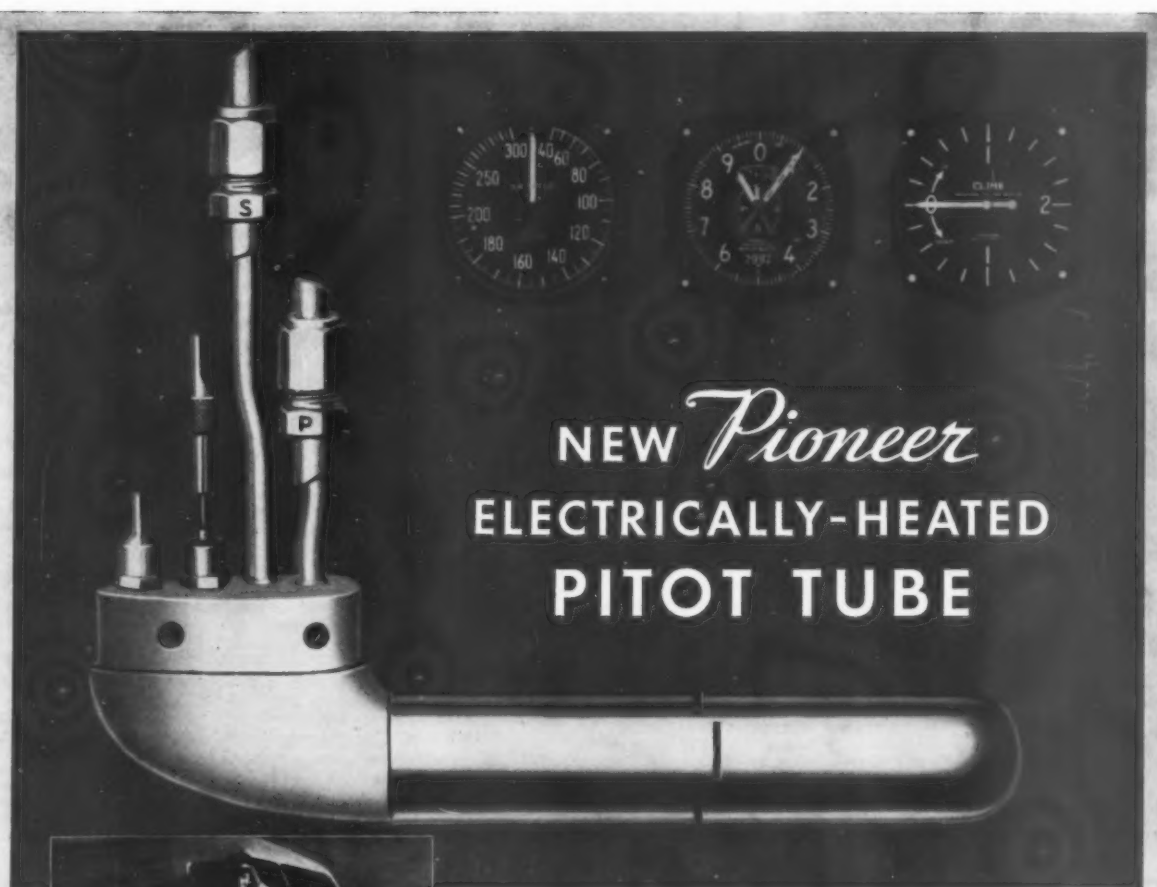


This modest sign hangs above the door of Pennsylvania-Central Airlines' operations office at Buffalo Municipal Airport. It strangely resembles one which graces the stage door of the Earle Theatre in Washington. Anyhow, we think we see the fine hand of old George Mason, PCA's "minister of propaganda," in this stunt. Note that the photographer caught the reflection of PCA's Capital Liner "City of Buffalo" in the glass.

New *Braniff*
OKLAHOMA CITY
—AMARILLO
Cut-Off!



fly
BRANIFF
38 FLIGHTS DAILY TO
THROUGH & FROM THE
Southwest



NEW *Pioneer* ELECTRICALLY-HEATED PITOT TUBE



Toward added flight-security...

"Weather or Not!"

Making the Pitot Tube weather-proof — which is virtually what this newest Pioneer advancement accomplishes — at once enormously safeguards the accuracy of the Airspeed Indicator, Climb Indicator and Sensitive Altimeter. It will not only prevent ice formations but will actually dispose of ice which may have accumulated before the electrical heating was applied. Tests have shown that 100 watts are sufficient to dissipate any ice accumulated in normal commercial flying. Pioneer commends this new electrically-heated Pitot Tube to the earnest consideration of every aircraft engineer. Write for explanatory literature.

THE FEATURES

- ★ Positive de-icing action
- ★ Heating element completely sealed from atmosphere
- ★ Heat applied to entire length of tube
- ★ No soldered joints in heating system
- ★ Patented means of water drainage
- ★ Terminal connectors remote from intense heat
- ★ Monel metal tube guarantees permanence of surface finish
- ★ Automatic regulation of current drain
- ★ Available for 12 and 24 volts

Pioneer INSTRUMENT
DIVISION OF BENDIX AVIATION CORPORATION
BENDIX, NEW JERSEY

Display Merchandises Air Express Service



In order to cooperate more fully with its clients in merchandising new styles delivered by its air express division, Railway Express Agency Inc. has evolved this window display. The unit consists of a flexible wooden screen finished in brilliant blue and gold lacquers, which permits display in any size window. Points of pick up and destination are indicated by red reflector buttons, and one or more airplanes may be attached to the screen to indicate cities. For further tie-in, tri-colored ribbons are extended from the planes to the articles. Display was designed and produced by Kay Displays Inc., New York.

30th Anniversary

Nov. 7 was the 30th anniversary of the first air express shipment, according to Railway Express Agency officials. The first shipment, on Nov. 7, 1910, consisted of five bolts of silk weighing 50 lbs. and valued at \$1,000. They were carried from Dayton to Columbus, 63 miles, in 71 minutes, by Pilot Phil Parmelee, whose course for part of the way was marked by a large white streamer waved from the back of a Big Four train. Orville Wright witnessed the take-off.

Neb. Planes Valued at \$76,915

Airplanes in Nebraska are valued for taxation purposes at \$76,915, almost 30% over 1939 figure of \$53,005, according to the office of the state tax commissioner at Lincoln. The 1938 valuation was \$33,500.

Nickeloid Representative Named

Gilbert L. Wolfe, formerly with Revere Copper and Brass Co., has been placed in charge of the Schenectady, N. Y., office of American Nickeloid Co., Peru, Ill., and will be central New York state representative for the firm's pre-finished metals.

Airline Priority

(Continued from page 1)

of the Defense Commission; Maj. A. J. Lyon, representing the Army, and Capt. D. C. Ramsey, representing the Navy.

The Committee will formulate policies to be submitted through Donald M. Nelson, coordinator of defense purchases, and administrator of priorities, to the Priorities Board for consideration and approval.

Capt. Kraus, the administrative officer, will handle all cases and make the necessary contacts with industry and with government departments. "Thus his relationship to the committee will be much the same as the relationship of the administrator of priorities to the Priorities Board," the announcement said.

In addition to Nelson, members of the Priorities Board, which was established Oct. 22, include Defense Commissioners William Knudsen, Edward R. Stettinius Jr. and Leon Henderson. A. C. C. Hill Jr., assistant to the coordinator of national defense, was named acting deputy administrator of the board. The airlines have already discussed several problems with Hill.

The Defense Commission recommended establishment of the board because of an anticipated "increasing demand for governmental assistance to assure the prompt delivery of articles required for the defense program," it was explained. Setting up of "adequate machinery for handling the priorities system . . . will . . . present industrial confusion."

Baker Establishes West-East Record of 9 Hrs. 29 Min.



A new west-east transcontinental speed record was established Nov. 2 by G. T. Baker, president of National Airlines, who flew a standard Lockheed Lodestar 2,357 miles from Burbank, Cal., to Jacksonville, Fla., in 9 hrs. 29 min.

Among those aboard the plane were (1 to r. above) Kenneth J. Boedecker, Wright Aeronautical Corp., who acted as flight engineer and observer; Baker, who flew the plane the entire distance himself, and Norman Lee, first man to fly around the world as a paying passenger using scheduled air transportation. Others aboard were La Piere Cavender, Lockheed Aircraft Corp., copilot, and Robert E. Johnson, Wright Aeronautical Corp., flight engineer.

Previous west-east record was established in 1938 by Howard Hughes, who flew 2,478 miles non-stop from California to New York in 10 hrs. 34 min.

Baker's time included a 13-min. refueling stop at Dallas. The plane, one of three ordered by NAL for service on its routes, averaged 248 mph. Most of the trip was made at 13,000 ft. Fuel consumption was about 96 gals per hr.

Robert E. Gross, president of Lockheed, in commenting on the flight, emphasized that the Lodestar "was a standard air transport in every sense of the word and was operated exactly as if it were being flown on schedule over an established airway."

Setting a Precedent



National Airlines flight stewardess, Miss Louise Taylor, is here shown setting a precedent in what the well dressed stewardess will be wearing this season. Flight stewardess service will be "standard equipment" when National places two Lockheed Lodestars in operation on Dec. 15.

Improved Windshield Wiper

Improved aircraft windshield wiper, operating on hydraulic pressure available from the hydraulic accumulator, has been developed by Acrotorque Co. of Cleveland, O., and will soon be installed as standard equipment on all American Airlines planes. The wiper, weighing 6½ pounds, is made of non-magnetic metals, and is equipped to feed alcohol as required to de-ice the windshield in winter flying.

American Issues Stock

Directors of American Airlines Inc. on Oct. 24 authorized creation of 100,000 shares no-par preferred. Company's charter was amended to provide for the new issue. Subsequently 50,000 cumulative preferred shares at \$4.25 were placed on market and quickly oversubscribed.

Luxury Goes South This Winter



Via "THE BUCCANEER ROUTE"



The mysterious Everglades, orange groves, sparkling lakes, the blue Gulf, the broad Atlantic and resort cities by the dozen—that's the "Buccaneer Route." And this winter luxury Lodestars, fastest transports of the airways, make it all so easy to enjoy. Faster and more frequent schedules than ever before. Stewardess service. Excellent connections with all sections of the country.

NATIONAL AIRLINES

CONGRATULATIONS TO NATIONAL AIRLINES

—on their new fleet of Lockheed Lodestars! We're proud that Western Electric 27B Receivers, Earphones and Microphones were selected for these splendid new ships. Western Electric Co., Kearny, N. J.

Western Electric

AIRCRAFT RADIO SYSTEMS



The Birdmen's Perch

We think that maybe we've started something that will turn out to be mighty interesting in the Private Plane Insignia referred to below. I don't think anyone has really looked into the possibilities of decorating planes with individual insignia. Maybe we'll all get some swell ideas!

Major Al Williams, alias "Tattered Wing-Tips," Mgr., Gulf Aviation Products, Gulf Building, Pittsburgh, Pa.

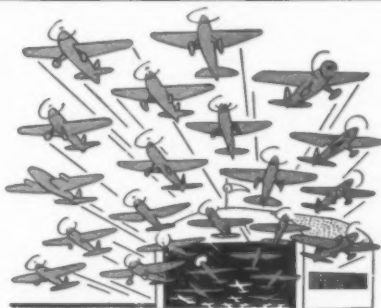
NEW BUSINESS DEPT. (Cont'd)

We wish you could have the fun of seeing all the private plane insignia that are coming in. The Army and the Navy boys have done a mighty clever job of thinking up trick insignia and it should be pretty interesting to see what the private plane owner has been doing. So send yours along. We'll publish the best ones soon.

GOLD, PURE GOLD

Remember the mountaineers with shaggy ears who used to squat along the banks of California creeks, panning for gold? Their methods of separating the gold from the muck and dirt of the creek bottom were pretty primitive. Besides getting their feet wet every day, they probably let many a nugget of gold slip through their fingers.

Now panning gold and refining oil present much the same problem. In both cases you've got to separate the dirt and



someone had opened the doors of the hangar and that all the planes had flown off of their own accord. Nobody could be seen at the controls—but off they went.

"Nonsense!" replied the manager. "Planes don't just up and fly off by themselves. You've been eating the wrong kind of pie."

The manager, who was in a hurry to get started on a business trip, then left the watchman. But several days later, when he returned, he summoned the watchman to his office and fired him.

Why?

(Will admit you took us over the jumps on the cigarette puzzle last month. This one is tougher. Send your answers to T.W.T. We'll let you know whether you got it, by return mail.)

THIS MONTH'S WHOPPER

(Distaff Side)

Dear Major:

Don't breathe a word to my instructor—he hasn't found it out yet—but last week I had a forced landing on my first solo flight and washed out a tire.

It turned out to be a lonely and wild section, so I set out on foot to get to a telephone. Well, first thing you know, I looked

up and there's a big, ugly rattlesnake lying across the narrow trail I was climbing. And he *wasn't* dozing!

He had that look in his eye that said, "I've had a hankering for something all day, and now I know what it is—a nice juicy bite of leg!" Now no snake-in-the-grass can look at little Betti like that and get away with it. The nearest thing at hand with which a girl might protect herself was a jug of G.A.G. I carry just for emergencies. So, grasping it firmly by the handle, I let fly. The jug of G.A.G. caught that reptilian masher right on the noggin, and the last I saw of him as I hurriedly retreated down the trail, he was licking up the splattered drops of G.A.G. with a happy, if surprised, grin on his face.

After I got back to the plane and had been sitting there about two minutes, I looked up and there was my little friend sitting up on his tail in front of me, begging for more. So I siphoned a pint out of the tank for him, and before you could say "San Luis Obispo" he was telling me about the wife and kiddies and what the boss had said to him and what he'd said back. I could see a crying jag coming on, so I quickly told him all about the washed-out tire on my plane.

Well, the G.A.G. made him so smart he knew just what I meant. He went up to the wheel and curled himself around it with his tail in his mouth and says, "Well, what are we waiting for?"

"Nothing," I replied, taking off and beating it for home.

Now, major, the only thing that's troubling me is what to do with Lefty—that's what I call him. The SPCA has been after me, but Lefty refuses to untwist himself from the wheel. He claims it makes him feel good, getting his back scratched whenever I take off. Since it's all G.A.G.'s fault, do you think you could square things with the SPCA for me?

Sincerely yours, Betti D. Fry



waste from the real thing. And over the years methods have improved tremendously in getting both gold and oil.

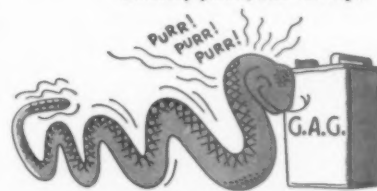
And when it comes to removing carbon-forming, sludge-producing wastes from motor oils, you have to doff your hat to the Alchlor process used in making Gulfpride. This Gulf-invented refining step is an "extra" that takes out additional quantities of the bad elements present in all oil, and leaves in *more* of the good ones.

The result: when you pour 100% Pure Pennsylvania Gulfpride into your engine, you give it the 24-carat protection it needs and deserves.

DO YOU BELIEVE IN DREAMS?

This one happened at a local airport the other day. The night watchman had just finished his duties at 6 A.M. and started talking with the manager of the airport.

"Last night," said the watchman, "I had a very peculiar dream. I dreamed that



Gulf Oil Corporation and Gulf Refining Company . . . makers of



GULF AVIATION PRODUCTS

Pan Am Acquires Minority Interest in Guatemalan Line

Pan American Airways acquired a minority interest in a new Guatemalan airline just prior to American Export Airlines' announcement of its purchase of TACA, Central American line, on Oct. 1, it is learned.

PAA has obtained a 10-year franchise representing a 40% interest in the Guatemalan company, which is owned by Guatemalan nationals and by George Denby, an American businessman. PAA will assist operations by furnishing equipment and technical assistance and advice.

In this way, PAA officials believe that they can insure operation of airline facilities in Guatemala by interests friendly to PAA, and simultaneously insure that the new com-

PCA Appointments



Lief Baumbach, left, formerly with Northwest Airlines, recently was appointed director of Pennsylvania-Central Airlines' new passenger service department.

At right is W. E. McGarry, PCA's new district traffic manager at Greensboro-High Point, N. C., on the line's new Norfolk-Knoxville route (AM-51) which was opened Nov. 1.

Taxis Overtaxed

Pilots in the Philadelphia area donated their services and planes on election day to shuttle Republican voters between Philadelphia and their home voting places within a 200-mile radius, but they failed to keep up with demands for the free service. The air-taxi service, provided by the Central-West Philadelphia Willkie-for-President Club, was burdened with over 100 requests, but it was estimated that only half of that number could be accommodated.

pany will not fall into hands unfriendly to the U. S., recalling Colombia's experience with German personnel on SCADTA.

Pan Am Buys Cessnas

Pan American Airways is buying four twin-engined Cessnas for use in Guatemala, where the company recently obtained a 10-year franchise and 40% control of a new airline owned by Guatemalan nationals and an American.

Airline Traffic Slips Slightly in September

For the first time in seven months, air travel as measured by revenue passenger miles failed to reach a new peak in September when 108,533,749 revenue passenger miles were flown, some 2% under the August record of 111,061,820. The September volume, however, was 57% greater than that for the same month a year ago.

The slight decline in September revenue passenger miles can be attributed to the fact that August has one more day, since the daily average for September was 3,617,800 compared with 3,583,300 the previous month. According to figures released by the Air Transport Association, revenue passenger miles in the first nine months of 1940 totaled



Shown here are members of the third graduating class of Eastern Air Lines ground personnel training school held in New York City. Front row, l. to r.: Roy Hammersmith, Houston; A. T. Thornhill, San Antonio; Sam Kerr and Don Harris, New York; G. D. Rust, Miami; Jack Barrington, New York, and W. C. Clarke, Atlanta.

Second row, l. to r.: James Gulick, Washington; R. E. Smith, Miami; C. C. Babylon, New Orleans; F. C. West, Tampa; J. F. Knorr, Miami; N. A. Ballantine, Chicago; E. M. Taylor, Richmond; R. J. Munroe, New York; John Eckert, Miami; H. R. Watson, New York; J. H. Emery, Brownsville; W. F. Barranger, Philadelphia, and W. F. Dunz, New Orleans.

Third row, l. to r.: J. E. Simkins, Spartanburg; C. H. Leach, New York; C. V. Ratcliff, Atlanta; DeWitt Ballew, Jacksonville; E. S. Byrd, Atlanta; C. W. DeCoudres, Jacksonville; P. D. Cook, New Orleans; W. E. Beach, Charleston; M. J. McDonough, Atlanta; R. Owen Smith, Houston; J. R. Handley, Chicago; F. W. Chaille, Miami; John Grandland, Chicago, and E. P. McDonald, Jacksonville.

775,050,891, exceeding by 61% the 481,469,139 for the same period of last year.

Traffic gains in September reported by individual carriers follow:

American Airlines carried 93,376 revenue passengers, 31,981,927 revenue passenger miles, up 63% and 51%, respectively, over 57,244 revenue passengers and 21,005,292 revenue passenger miles in Sept. 1939.

Braniff Airways flew 11,068 revenue passengers, 3,395,272 revenue passenger miles, against 5,936 and 1,863,144 a year ago, percentage gains being 86% for revenue passengers and 82% for revenue passenger miles. Nine months' revenue passenger traffic was up 90% over similar period of 1939.

Chicago & Southern Air Lines showed 100% increase in passengers served over Sept. 1939, flying 1,683,320 revenue passenger miles against 895,510. For the first nine months, revenue passenger traffic was up 80% compared with same period of last year.

Eastern Air Lines reported more than 31,000 revenue passengers carried, increase of 56%, and 12,335,603 revenue passenger miles, increase of 54%, over Sept. 1939.

Northwest Airlines' 12,283 revenue passengers compared with 8,687 a year ago, a 41% gain. Revenue passenger miles totaled 5,891,887 or 40% more than 4,192,441 for Sept. 1939.

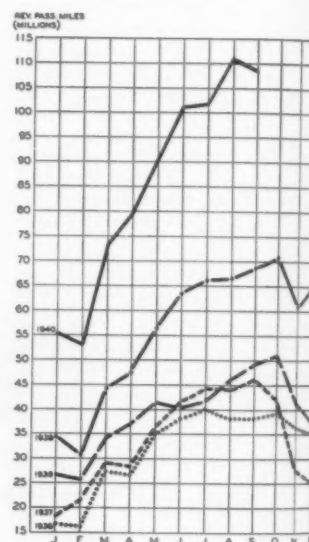
Pennsylvania-Central Airlines Corp. carried 21,571 revenue passengers and flew 3,714,006 revenue passenger miles, up 64% and 87%, respectively, over 13,155 and 2,221,808 a year ago.

United Air Lines flew an estimated 25,085,700 revenue passenger miles in September, a 48% gain over 16,880,841 for same month of last year. Up to Sept. 5, United operated 148,977,576 revenue passenger miles compared with 148,954,288 for entire 1939.

Western Air Express revenue passenger miles increased 48%, from 1,169,459 in Sept. 1939 to 1,739,266.

United Starts Winter Schedules, Maintains Summer Frequency—General revision of United Air Lines' schedules was made Nov. 1 in accordance with winter flying times, with full summer frequency of flights being maintained.

30-Day Month



Revenue passenger miles for September: 108,533,749 compared with 48,124,405 for Sept. 1939, representing an increase of 57.02%. Nine-month total for 1940: 775,050,891 compared with 481,469,139 for 1939, representing an increase of 60.98%. (Air Transport Association figures).

TWA Arranges Equipment Financing Through Revolving Credit With 7 Banks

A four-year unsecured revolving credit, to provide funds for the purchase of new flying equipment, has been established as the result of an agreement entered into between TWA and a group of seven banks, headed by Commercial National Bank & Trust Co. of New York, according to announcement on Nov. 7 by E. Lee Talman, TWA's vice president-treasurer. The new equipment principally involves 15 new 24-passenger DC-3's, delivery of which will be made over a three-months' period beginning in the middle of Dec. 1940.

Initial amount to be borrowed will be \$2,500,000. Following this, TWA is permitted to borrow, as its actual money requirements develop, varying

sums graduated downward annually to the expiration of the agreement on Dec. 31, 1944. Interest rate will be 2 3/4%.

Participating banks are: Commercial National Bank & Trust Co. of New York, New York Trust Co. of New York, Harris Trust & Savings Bank of Chicago, First National Bank of Kansas City, Commerce Trust Co. of Kansas City, National Bank of Commerce of Houston, and Farmers & Merchants National Bank of Los Angeles.

"This form of financing is particularly adaptable to the requirements of the industry," Talman said. "It provides extreme flexibility and assures the airline of adequate funds without the necessity of fixed borrowings."



NOW—FLY THE SKYWAY CLOSER TO THE SUN!

TWA 4-Engine Stratoliners fly faster, smoother, higher—closer to the sun!

With supercharged cabins for 33 passengers, appointments that set new standards for luxury travel, these great new ships offer the fastest, smoothest, transcontinental air service, over the shortest, fastest, coast-to-coast route. It's only 13 hours, 45 minutes from Los Angeles to New York—15 hours, 38 minutes from New York to Los Angeles, when you fly the Route of the Stratoliners!

Information, Reservations:
Call Your Travel Agent or
TWA Representatives Everywhere

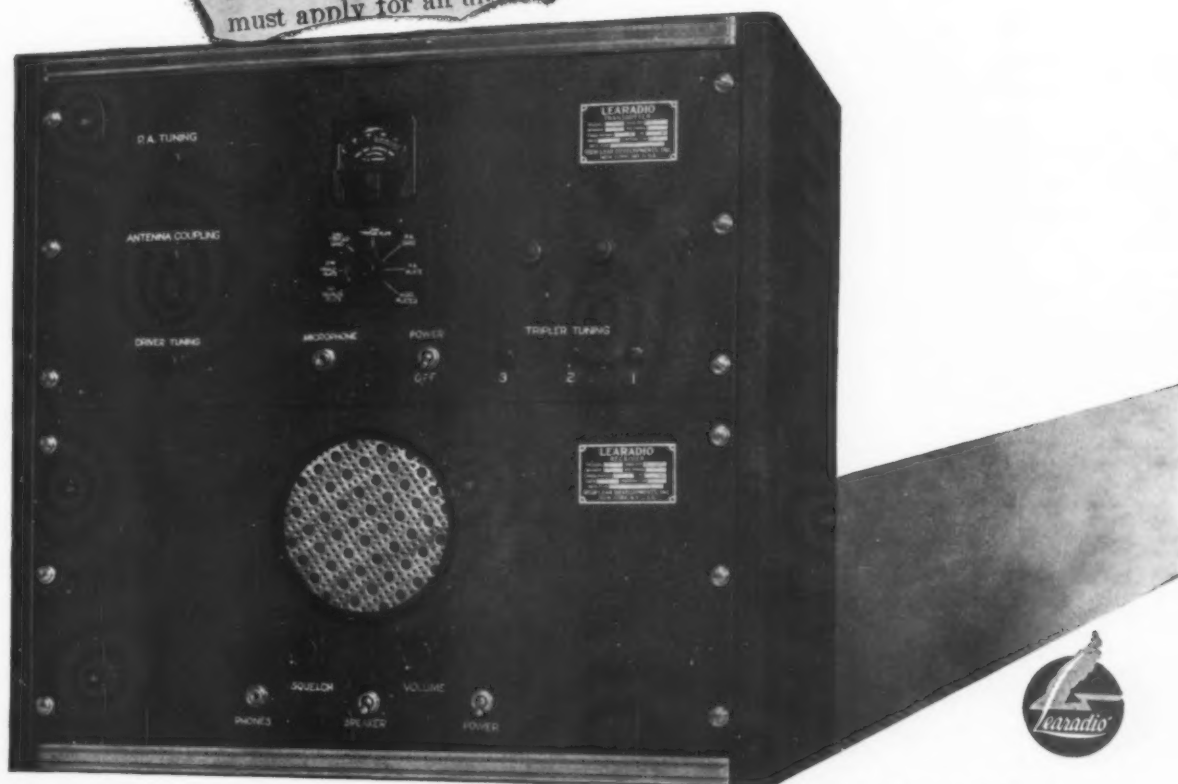
TWA

ROUTE OF THE STRATOLINERS

TRANSCONTINENTAL
AIRLINES

AIRPORT CONTROL TOWER FREQUENCY CHANGES ARE EFFECTIVE JAN. 1, 1941

Frequencies: Distress, calling, and navigation.—278 kilocycles airport control frequency.—After January 1, 1941, applicants for renewal of airport control station licenses must specify an ultra high frequency in addition to 278 kilocycles and provide service on 278 kilocycles until an ultra high frequency is designated as a substitute for 278 kilocycles. After January 1, 1941, all applicants must apply for an ultra high frequency.



Meet New F.C.C. Requirements with LEARADIO Ultra High Frequency Transmitters and Receivers

THE superior characteristics of this new Lear development result in performance far exceeding the minimum F.C.C. requirements. Advanced features, many of them exclusive, reflect the specialized experience of Lear research . . . pioneering research which, during the past eight years, has resulted in the development of many important advancements in aircraft and ground station transmitters and receivers.

The LEAR policy of always designing equipment to meet the "minimum required" performance . . . with "performance PLUS" . . . reflects itself once more in this unit. The LEAR UHF Airport Transmitter has been engineered not only to meet the minimum requirements set up by the F.C.C. but, to have a reserve of power, fidelity, and mechanical strength. Besides this, it uses the latest type UHF tubes, oversized power supply and ingenious circuit designs. The result is

equipment which assures exceptional performance at minimum cost.

The rigidly high standards under which Lear Ultra High Frequency equipment is built . . . the precision limits which make for the typically finer Lear type of performance . . . the determination to spare no expense for intensive development work . . . achieve results that are ideal in practice.

A subsequent advertisement will picture and describe the Lear Ultra High Frequency Aircraft Transmitter and Receiver.

Pacific Division: Lear Avia of California, Inc., 1030 North McCadden Place, Hollywood, Calif.
Atlantic Division: 30 Rockefeller Plaza, New York, N. Y. Service Station: Roosevelt Field, Mineola, N. Y.
Wichita Division: Beech Aircraft Corp., Wichita, Kansas.
Export: 30 Rockefeller Plaza, New York, N. Y. Cable: Learavia, N. Y.

Write for UHF literature.

LEAR AVIA, INC.
DAYTON, OHIO

Pan American Would Merge Subsidiaries to Simplify Structure

Extensive plan of Pan American Airways to simplify its intercorporate structure through merging of subsidiaries and transfer of control was submitted in hearings before CAB Examiner Frank A. Law Jr., Oct. 25 and Oct. 31.

Proposals for which approval is sought include: (A) Merger of Pan American Airways Inc. and each of the following affiliates and their properties into one person to be known as Pan American Airways Inc.; Pan American Airways Co. (Nev.); Pan American Airways Co. (Del.); Pacific Alaska Airways Inc.; Panama Airways Inc.; Marine Airport Co., and Pan American Manufacturing & Supply Corp.; (B) Acquisition by Pan American Airways Inc. from its parent, Pan American Airways Corp., of control of latter's following subsidiaries: Uraba Medellin & Central Airways Inc.; Compania Mexicana de Aviacion, S. A.; Compania Nacional Cubana de Aviacion, S. A., and Panair do Brasil, S. A.

Total assets of the seven companies to be merged would be reduced from \$60,284,880, as of Aug. 31, 1940, to \$45,234,885 after the merger, a company exhibit indicated, through elimination of \$15,049,994 in intercompany contra items.

Savings Expected

J. S. Woodbridge, comptroller of the Pan American Airways System, explained that the program offered would effect savings by elimination of additional taxes which result from operating through separate corporate units, simplify the keeping of accounts, and coordinate supervision of operations. Each company, he said, would continue to keep records but as a division of Pan American Airways Inc., while timetables, tickets and sales literature would bear the same name, thus lessening public confusion.

Although Pan American has made no actual study of the amount of savings expected, economies are apparent, Woodbridge pointed out, through reduction in federal income taxes to follow soon as separate companies are eliminated. Since 1934, he stated, the System's units have been obliged to file separate income reports for federal taxation, instead of one consolidated statement for all. Under a consolidated report the losses of one company tend to balance profits of other companies and thus decrease the taxable total. Further savings would accrue from state taxation on franchises since such returns are based on the ratio of assets within the state to total company assets and would be lessened for the System with elimination of several companies.

Advantages of a possible later merger between the continuing company, Pan American Airways Inc.,

UAL'S Speedliners

The Speedliner has now joined the Mainliners, Flagships, Skylubs, B-Liners, Sky Zephyrs, Silverliners, Capital Ships, Stratoliners, State-ships, etc., on the U. S. airline system. It's the name given by United Air Lines to its new Lockheed Lodestars now being used on the Los Angeles-San Francisco run.

and the holding company, Pan American Airways Corp., is being given some consideration, Woodbridge testified, indicating that the number of subsidiaries of the parent company, 28 in the spring of 1940, would soon be reduced to 12.

Acquisition Sought

Acquisition of control of the several Central and South American carriers rather than a merger with these companies is sought by Pan American Airways Inc. because of national laws in the various countries, Woodbridge stated. In Brazil and Mexico, for example, foreign carriers are not permitted to transport passengers between points within the national boundaries, he said.

At conclusion of the hearing, Examiner Law denied a motion of A. G. Cooke, Pan American counsel, to waive an advisory report so as to speed-up the mergers. Examiner Law stated he was not prepared to recommend without qualification approval of the proposals.

Airports Should Not Handle Over 200 Schedules Daily, Landis Says

No one airport, no matter how large or how well equipped and operated, should be expected to handle more than 200 airline schedules daily, according to Reed G. Landis, regional vice president of American Airlines.

In a recent speech at Louisville, Ky., Landis stated that he based his conclusion on studies made by American.

"This total has been estimated on the basis of an hourly capacity with the knowledge that in most fields there is at least one peak hour during which approximately 12½% of the daily schedules arrive and depart," he said. "We believe that the hourly capacity of an airport should be set at about twice the capacity of that airport to accept and discharge aircraft in time of instrument approach."

"We believe that improvements in instruments and technique and ground provisions, such as parallel runways, may make it possible to land and discharge an airplane every two and one-half minutes, allowing five minutes interval between each landing and sandwiching the take-offs in between."

"This gives 24 operations an hour, which when doubled, results in 48 operations, or 24 schedules. This means that in times of instrument approach there will be a normal delay of approximately one hour on some of the aircraft scheduled during the peak hours. This delay will be less in other than peak hours and will, of course, disappear completely in times of contact flight."

"It appears probable that civilian unscheduled operations will continue to be light in instrument weather, but the

presence of military units on transport airports introduces new and unsolved traffic problems."

By 1945, American's studies show that there will probably be about 250% of 1940's schedules in operation, and that 1950 will see about 400% of 1940's, Landis said. "We have further estimated that the average passenger loading of airline aircraft in 1945 will be about 20 people, rather than the 13 current this year and that in 1950 the average airplane will be loaded with about 25 people," he stated.

The income of an airport should be derived from those who benefit from its operation, predicated on the extent of their operations, he explained, adding that "it appears that the most equitable method of determining such remuneration for scheduled operations is on the landing fee basis.... Certainly some similarly equitable basis should be devised for unscheduled operations. The public, who benefits,.... must also pay its share of the cost of the airport."

Pan Am Makes Bermuda Round Trip in One Day

Pan American Airways' Yankee Clipper, commanded by Capt. W. D. Culbertson, made the first one-day round trip Clipper flight between New York and Bermuda on Oct. 13.

The flying boat left New York at 5:50 a.m. with 13 passengers and 30 lbs. of mail, returning at 5:24 p.m. with 14 passengers and 1,000 lbs. of mail.

Of the passengers, 38 were gas company executives and salesmen who had received a Bermuda trip in a recent sales contest.

Pan American Airways Proposes to Simplify Corporate Structure



Each of the larger circles represents the parent corporation, Pan American Airways Corp., and the inner broken-line circles, Pan American Airways Inc., the continuing company under the merger plan. Figure on the left shows 14 principal companies of the Pan American Airways System in relation to PAA Corp. and PAA Inc. today. After giving effect to simplification of the intercorporate structure as proposed by Pan American Airways in hearing before CAB (see story adjoining), 8 of the 14 would

remain as shown in right circle. Six companies would be merged outright with PAA Inc. and so do not appear in right circle, while four others would be acquired by PAA Inc. from PAA Corp. To carry out the action, PAA Corp. would transfer to PAA Inc. all of its holdings of stock in companies involved, such transfer to constitute contribution of paid-in surplus by PAA Corp. to PAA Inc. All operating certificates of the companies to be merged would be transferred to PAA Inc.

SUMMARY OF PAN AMERICAN AIRWAYS OPERATIONS FOR AUGUST

(Compiled and Mileage Costs Computed from CAB Reports a)

	Rev. Pass.	Rev. Pass. Miles	Seat Miles Operated	Pass. Load Factor	Ten-Miles U. S. Mail	Pass. Revenue	U. S. Mail Revenue	Foreign Mail Revenue	Operating Expense	Operating Expense	Cost per mile Fl.	Net Revenue From Operations
Pacific Alaska Airways Inc., Juneau-Fairbanks	286	189,804	291,280	88.1%	1,704	\$31,738	\$ 6,273	\$ 00	\$30,132	\$43,631	\$.79	\$13,496 (net)
Pacific Alaska Airways Inc., Seattle-Juneau	221	199,884	312,388	84.0%	3,253	18,418	00	00	19,483	41,429	2.30	21,946 (net)
Pan Am. Airways Co., New York-Bermuda	317	209,884	294,752	70.0%	1,350	22,117	15,300	834	38,251	38,251	8.47	194,539 (net)
Pan Am. Airways Co., New York-Libon	317	1,028,941	2,181,928	47.0%	38,289	109,409	189,681	229,252	\$33,787	738,688	4.40	136,008 (net)
Pan Am. Airways Co., San Francisco-Hongkong	1	2,370	418,762	98.1%	8,028	67,893	00	00	325,883	348,673	4.48	12,777 (net)
Pan Am. Airways Co., San Francisco-Auckland	286	754,243	1,140,518	98.1%	20,864	274,850	417,599	1,241	746,899	636,217	1.74	118,660 (net)
Pan Am. Airways Inc., Eastern Division	6,030	3,740,897	5,889,000	63.7%	.....	192,562	168,291	18,189	360,379	287,230	1.28	83,148 (net)
Pan Am. Airways Inc., Western Division	7,598	1,487,309	2,112,829	63.4%	10,000	113,463	192,889	18,925	346,004	267,468	1.76	78,536 (net)
Pan Am-Grace Airways Inc.	1,878	1,240,934	1,170	38.1%	50	128	00	00	128	128	1.83	3,164 (net)
Uraba, Medellin & Central Airways Inc.	180	47,180	204,850	23.0%	00	4,825	00	342	8,444	11,608	1.09	3,164 (net)

a All monthly reports to the CAB are subject to revision and year-end adjustment.
b Total operating expenses divided by total plane miles; computed to nearest half-cent.
c Not reported by company.

DESTINY PAUSES

TO COUNT THEIR NUMBER



Even as the school boy knows that this war and future wars will be decided in the sky, military men know that the decision will go to the side having the dominant *defensive* air force. ■ Whole cities may be prey to the bomber . . . but the bomber is prey to the pursuit plane—the airplane of defense. Given a sufficient number of defense planes and the trained men to fly them, and neither cities nor armies nor ships can be bombed into submission. ■ So, with the fate of nations and the very existence of empires at stake, the issue even now is being resolved by the Squadrons of Pursuit. Their might challenges that of the mightiest dictator. Upon the courage and skill of their fighter pilots and the effectiveness of the planes they fly, rest the future hopes of hundreds of millions of people. ■ Destiny pauses only to ask—is their number equal to their historic assignment in the present combat?

REPUBLIC AVIATION

In our program of national defense, no undertaking is more important than the speedy production of pursuit and fighter aircraft of high tactical efficiency. To fulfill its part in this vital task, Republic Aviation Corporation pledges its every resource in Man Power and equipment. Republic Aviation is ready—for today's job and tomorrow's.



REPUBLIC AVIATION CORPORATION
FARMINGDALE, LONG ISLAND, NEW YORK



Airline Personnel

DAVE ROBERTSON, from New York reservations, has been appointed district superintendent of reservations service for United in Chicago, and **Frank Ison**, who has been district superintendent at Portland, goes to San Francisco in the same capacity, according to J. N. Rauen, manager of reservations. Robertson and Ison, respectively, succeed Lee Haneline and Frank Taylor, who have been promoted to assistant managers of reservations service. Rauen also announced that **Ben Berry**, assistant superintendent of reservations in CG, had been named to succeed Ison as district superintendent of reservations in PD and that **Dean Vogelaar**, of CG reservations, had been appointed assistant superintendent in the CG office.

TWA Radioman Carl E. Shaw has been transferred from St. Louis to Dayton as chief radioman.

New addition to Eastern's Louisville staff is **O. G. Byrn**. New on the Jacksonville staff are **J. W. Kleven** in maintenance; **E. V. Leigh**, recently in maintenance at Atlanta, and **Charlie Scooter** Scott from La Guardia Field. **James J. Siddle**, having completed work at Boeing School of Aeronautics in September, is now with Trans-Canada.

Reserve Captain K. Irwin of TWA has been promoted to captain and transferred from New York Municipal Airport to Pittsburgh; **First Officer K. P. Oupal** was transferred from LG to St. Louis; at Kansas City, **Reserve Captain K. R. Meinerd** was promoted to captain.

W. S. Ingram recently joined Eastern's family at Orlando, Fla. New EAL transportation agents at Savannah, Ga., are **James S. Gist** and **L. D. Hagins**.

To conform with recent operating changes, the following appointments are made recently by Canadian Airways: **Superintendent—W. J. Windrum**, at headquarters at Prince Albert, Sask.; **Assistant Superintendent—C. N. Wile**, with headquarters at Edmonton, Alta.; **Superintendent of Maintenance—W. Field**, with headquarters at Edmonton.

Eastern has expanded its personnel at Nashville almost 50% in connection with recent inauguration of service to Nashville and St. Louis and to Birmingham. **E. S. Poole**, traffic representative formerly of Chicago, will assist **Alvin C. Hambel**, city traffic manager. **Miss E. Glenn Corwin**, traffic representative in the Nashville city office, with personnel at the field include: **H. Schmidt**, radio operator from Philadelphia; **B. A. Pickett**, transportation agent from Atlanta. Other personnel at the field are: **R. J. McFarland**, field manager; **A. M. Rucker**, C. L. Hallman, W. Vanderford, D. W. Baughman, C. Nicholson, W. L. Andre, C. T. Irwin and C. E. Littlejohn, all transportation agents.

The following TWA employees recently came passenger agents through promotion and transfer: **P. W. Furst** at Indianapolis; **D. C. Logan** at Pittsburgh; **Julius A. Wayne** and **Robert**

C. Thompson at New York, and **John A. Ference** at Pittsburgh.

J. A. Herlihy, executive vice-president of United, gave a lecture on aeronautics before the Harvard Business School of Administration on Nov. 4.

Peter Demos, **Robert Lee Downs**, **Ellis H. Easton**, **Joseph F. Genta**, **Francis B. Smith** and **Jack Walter**, all September graduates of Boeing School of Aeronautics, have joined United at Cheyenne, Wyo., as apprentice mechanics.

Lew H. Schaefer, 25, a native of Sea Cliff, N. Y., has been employed by EAL as a pilot. He has recorded more than 2,000 hours in his air log. Schaefer is based at New York Municipal Airport.

Recent TWA promotions and transfers have been reported as follows: **E. M. Lepper**, chief clerk, Pittsburgh; **K. A. McGaha**, station manager, Chicago; **Glenn A. Wise**, station manager, Detroit; **H. J. Meyer**, "A" mechanic, Kansas City, Mo.; **G. E. Naeye**, "A" lead mechanic, Burbank, Cal.; **J. J. Nelson**, "A" mechanic, KC; **Richard E. Ennis**, assistant manager of passenger relations, KC; **Peter H. Redpath**, navigation engineer, chief pilot's office, KC; **Frank M. Huffer**, operator in charge of link trainer, KC; **William C. Love**, chief of ticket and reservations sales representatives, San Francisco; **R. D. Totten**, representative of traffic & sales, PT; **W. McDonald**, reservations manager, New York.

J. B. Kennedy recently was transferred to Muscle Shoals as station manager for EAL. **Jimmy Goodwin** left ED recently to go to Raleigh, N. C., as station manager, replacing **J. F. "Johnny" Deik** who went to Atlanta as dispatcher.

Hill Holmberg has taken over his new duties as sales control manager of United with headquarters in the general offices in Chicago. He formerly was manager of industrial sales in the Chicago regional traffic office.

E. O. Billings, TWA captain, recently was transferred from Chicago to Kansas City, Mo.; **A. M. Parkison** was promoted from first officer to reserve captain at New York Municipal Airport; **J. J. Polizzi** was promoted from reserve captain at LG to captain at CG; **Reserve Captain W. I. Sanders** was promoted to captain at KC; **First Officer William Hawkins** was transferred from LG to St. Louis.

New EAL apprentice transportation agents at Greenville, S. C., are **R. C. "Bob" Ferguson** and **W. N. "Bill" Miller**.

A. W. McLaughlin, meteorology major at Boeing School of Aeronautics, has been employed by Pan Am at Brownsville, Tex.

M. B. Crawford, for nine years on the engineering staff of Boeing Aircraft Co., has joined United's engineering department in Chicago, according to an announcement by **W. C. Mentzer**, chief engineer.

J. T. Keller, TWA first officer, recently was transferred from New York to St. Louis; **Reserve Captain L. J. Graham** was promoted to captain and transferred from LG to LS; **First Officer R. Day** also was transferred LG to LS; **Reserve Captain A. Nelson** at Chicago was promoted to captain.

W. A. "Bill" Snowden of EAL recently was transferred from Jacksonville to Tallahassee, Fla.

Now stationed at Pittsburgh for Penn-Central is **Orville Braun**, meteorology major who completed work in September at Boeing School of Aeronautics.

Robert B. Kinkiad, former assistant d. t. m. for United at Denver, is now Lt. Kinkiad on leave from UAL in the public relations section of the Army Air Corps' information division in Washington.

New members of EAL's 36th Street Airport staff at Miami are **Edward Holding**, **John Howe**, **Robert R. Johnson**, **William J. Johnson**, **Edward L. Jones**, **George Jones**, **Francis Knorr Jr.**, **Stuart Kutsche**, **Howard McBride**, **Thomas McKinney**, **John Mellas**, **Herman L. Miller**, **William Molesworth**, **Trevlin Moltz**, **Walter T. Moore**, **Norman Oldson**, **James K. Patterson**, **Robert Scarborough**, **Charles Srofe**, **Jacob Strumph**, **Willis Stoner**, **Jack Swanson**, **Chester J. Turner**, **Robert Venema** and **Richard Wilkins**.

Appointment of **Joe Morris**, San Francisco traffic & sales representative for TWA, as assistant manager of the foreign and agency department to assist **J. C. "Johnny" Graves**, was announced recently by **V. P. Conroy**, TWA vice president of traffic & sales. American recently transferred **Alex**

AIR CARRIER RECORD

(C. A. B. Applications, Hearings, Dockets)

Export Asks Routes

American Export Airlines has filed application with the CAB for two routes between New Orleans and Central America. Complete story on page 10.

Pan Am Seeks African Operation

Application has been filed by Pan American Airways for permission to conduct certain westbound trans-Atlantic flights via the African coast. Complete story on page 8.

PCA Accident Report Released

The CAB has released its report on the accident of Pennsylvania-Central Airlines near Lovettsville, Va., on Aug. 31. Complete story on page 7.

AA Mexico Application

American Airlines has signified its intention of filing an application for a route between "the respective terminal points El Paso . . . and Ft. Worth . . . the intermediate point Monterrey . . . in the Republic of Mexico, and the terminal point Mexico City . . . and that Eagle Pass or Laredo or San Antonio, Tex., or more than one of said cities be included as additional intermediate points in the event that Civil Aeronautics Board determines that the public convenience and necessity so require."

PCA Serves Hickory, N. C.

Pennsylvania-Central Airlines has been granted CAB permission to serve Hickory, N. C., on temporary basis on AM51, Norfolk-Knoxville, until the Asheville airport is improved.

CAB to Fix New Zealand Rate

The CAB has ruled that a hearing will be held on a date to be fixed on the application of Pan American Airways Co. (Nev.) for setting of a mail rate on its San Francisco-Auckland route. At the same time investigation will be made to determine whether PAA's rate on San Francisco-Hong Kong is fair and reasonable.

Fabian Approved

Interlocking relationships involving **Harold P. Fabian** as a director of Western Air express and director of Salt Lake City Union Depot and Railroad Co. have been approved by the CAB.

TWA-AA Agreement Approved

An agreement between TWA and American Airlines, relating to the use of facilities at Phoenix, Ariz., has been approved by the CAB.

ATA Articles Okayed

The articles of association of the Air Transport Association of America have received CAB approval.

Braniff Asks Certificate Amendment

Braniff Airways has filed application for a certificate amendment to AM15, extending the Amarillo-Oklahoma City segment, recently granted, from Oklahoma City to Memphis via Tulsa, Ft. Smith and Little Rock, a total of 473 route miles.

Carriers Seek Atlantic City Stop

Hearing opened Nov. 6 before CAB Examiner **Lawrence Kosters** on applications of Eastern Air Lines for inclusion of Atlantic City, N. J., on AM-5 and AM-4, Transcontinental & Western Air for inclusion of Atlantic City on AM-2, and Pennsylvania-Central Airlines Corp. for extension of AM-34 to include Atlantic City, Philadelphia, Newark and/or La Guardia Field.

Mail to Philadelphia Urged for UAL

Recommendation that United Air Lines be authorized to transport mail, as well as passengers and property, to and from Philadelphia on AM-1 was made Nov. 7 in advisory report issued by CAB Examiner **J. Francis Reilly**.

UAL Asks Mail on Seattle-Vancouver

United Air Lines filed application Oct. 24 for authorization to carry mail, in addition to passengers and property, on its Seattle-Vancouver route.

Pan American Airways Merger

Hearing on proposal to merge various Pan American Airways subsidiaries was held Oct. 25 and Oct. 31. Complete story on page 16.

Aero Pickup Asks Virginia Routes

Aero Pickup Service Corp., Norfolk, Va., filed application, Oct. 29, for three pick-up routes wholly within Virginia. Complete story on page 10.

Examiner Supports UAL Motion

At a five-minute hearing reopening United Air Lines' mail rate case Nov. 1, CAB Examiner **J. Francis Reilly** stated that he would recommend without issuance of an advisory report the approval of United's motion, dated Sept. 13, requesting CAB to change the effective date of its Aug. 26 order from Sept. 1 to Sept. 7. The supplemental order of Aug. 26 had prescribed new rates effective Sept. 1 for AM-1 and AM-12 which were less than rates designated by original order of July 22, so as to conform to additional mileage with new approved schedules. The additional schedules approved by the CAB Aug. 26, however, were not designated for mail by the Postmaster General until Sept. 6 for operation starting Sept. 7.

PAA Denied Right to Give Free Ride

Pan American Airways has been denied permission to furnish free air transportation between San Francisco and Auckland, N. Z., to a member of the Export Managers Club of New York.

EAL Gets Permission to Suspend Spartanburg

Eastern Air Lines has been granted permission to suspend service at Spartanburg, S. C., for a period of 60 days beginning Nov. 1.

Calendar of Hearings

Nov. 25—American Airlines, rate hearing.

Nov. 25—All American Aviation Inc., to furnish pick-up service to Lewistown, Newport, Mechanicsburg, Carlisle, Newville, Shippensburg and Ripley, and for re-routing of flights via Harrisburg.

Parsons, ticket agent, from Buffalo to Detroit.

Warren Burke has returned to United's traffic office in San Francisco in charge of financial and mercantile classifications he formerly handled.

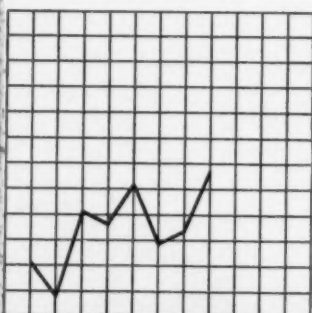
L. E. Mapin, "A" mechanic for TWA, has been appointed inspector at Kansas City. **Inspector C. H. Engel** has been transferred from KC to Burbank.

Five EAL employees at New Orleans

hold pilot licenses. They are: **Gene Beville**, commercial; **Katherine Sigler**, **Buddy Dunz**, **W. S. Rogers** and **Edward J. Bordes**, private.

TWA recently transferred **Station Manager C. T. Sinnard** from Indianapolis to Dayton in the same position. His place at ID was filled by **Station Manager Earl E. Kelsey**, transferred from Ft. Wayne, Ind. **Worth Johnson**, chief passenger agent at ID, was transferred to FW as station manager.

AIR EXPRESS



THOUSANDS

August shipments totaled 90,934, an increase of 22% over Aug. 1939. Gross revenue for August increased 30% over 1939 to an all-time high for any month since the start of the service in 1927.

Gross revenue for the first eight months of 1940 increased 27% over the corresponding period of 1939. Shipments for the eight-month span totaled 357, an increase of 23%.

SEA POWER IN THE AIR



Off the assembly line on regular schedule now are these powerful cruisers of the air—the Martin PBM-1 patrol bombers. Soon a new Navy squadron will be ranging far at sea, ever watchful of our national safety; ready to summon a mighty force if ever that safety is jeopardized; ready to strike a heavy blow when need be. ★ Carrying a normal load of 40,000 pounds, packing the power of 2,700 horses in its pinions, which measure 118 feet from tip to tip, these new Martin flying boats are able to perform distant patrol mis-

sions separately, or attack in force as a group. Information on armament is restricted, but visible on each of these are four turrets. Heavily gunned, they can be approached only with utmost respect. ★ With complete living accommodations for its crew of seven; with efficient auxiliary electric power plant, heating, sound proofing, ventilating, and de-icing equipment, the PBM-1's are designed to operate from fixed bases or with the fleet at sea. ★ Truly, this fleet of the air will be an important adjunct to the fleet of the sea.

THE GLENN L. MARTIN COMPANY, BALTIMORE, MARYLAND

Builders of Dependable



Aircraft Since 1909

TRADE MARK

MARTIN

AMERICAN AVIATION

The Independent Voice of American Aeronautics
Published the 1st and 15th of each month

WAYNE W. PARRISH.....Editor
ERIC BRAMLEY...Ass't Editor-Magazine
GEORGE N. SHUMWAY....News Editor
LEONARD EISERER...Ass't News Editor
JOHN T. SHANNON.....Adv. Manager
RICHARD R. PATSCHKE.....Cir. Mgr.

Editorial and business office, Earle Bldg., Washington, D. C. Published by American Aviation Associates, Inc.; Wayne W. Parrish, president; Albert H. Stackpole, vice-president; Edward J. Stackpole, Jr., secretary-treasurer, 104 Telegraph Bldg., Harrisburg, Pa.

Address all correspondence to
AMERICAN AVIATION
Earle Bldg., Washington, D. C.

ALBERT H. STACKPOLE...Assoc. Editor
ROBERT H. WOOD...Ass't Editor-Daily
DAVID SHAW...Ass't Editor-Directory

ADVERTISING REPRESENTATIVE
W. F. Coleman
1038 Henry Bldg.....Seattle
Room 1001, 485 California St., San Francisco
530 West 6th St.....Los Angeles

Subscription rates — \$3.00 per year.
15c per copy; Canada and Pan-American countries — \$3.50; all other foreign — \$4.00.

Entered as second-class matter at the Post Office at Washington, D. C., with additional entry at Harrisburg, Pa.

AMERICAN AVIATION DAILY: Published six days each week except holidays, dispatched by air mail. A confidential news letter covering daily developments in aviation and the national capital. \$15 per month, \$85 for six months, \$170 per year. Service Bureau available to all subscribers. Special telephone District 1681. Group company rates on request.

AMERICAN AVIATION DIRECTORY: Published twice a year, spring and fall. Complete listing of aviation companies and organizations, including government agencies, and their officials and important personnel. \$3.00 single copy, \$5.00 per annual subscription. Bulk rates on request. Next issue Apr. 15, 1941.

Fortnightly Review

(Continued from page 1)

Hill, the entire rate-making procedure might as well be turned over to Congress. After all, why bother with a middle-man?

In the American Export case, the Board, after months of hearings and argument, decided that competition was desirable in the trans-Atlantic field if it was desirable anywhere. They so decided over the strong protests of Pan American Airways, the existing carrier. Their decision was approved by the President, the State Department and the Navy.

A mail rate had not yet been set for Export's route, but the Post Office Department over a month ago tried to get \$500,000 before Congress adjourned or recessed, so as to have funds when a rate decision was forthcoming.

The House Appropriations Committee had different ideas. In throwing the \$500,000 out of the bill, it said, in part: "Under present law the CAA may grant permits for new service on their own initiative or on the initiative of the Post Office Department certifying that there is need for mail service. In the present case the Post Office Department did not initiate to the CAA a request for the service."

The CAA, now CAB, has never, since passage of the Act, established one single route, domestic or foreign, on its own initiative. The Post Office has certified several routes, but only after the carriers involved had filed applications to have mail put on the routes.

The TWA case is equally interesting, because it involves both the question of retroactive rate increases, and the exceedingly low bids submitted by some lines under the competitive bidding system of the old law.

In refusing to appropriate \$585,000 for TWA's retroactive increases, Senate committee members recalled that the company bid one mill a mile on two routes, and took the position that the three-year contracts should be completed at that rate. One Senator went so far as to call the bids a "damnable fraud." Another Senator said that money would never be appropriated for the payments.

Just why this attitude should be assumed so suddenly is a mystery. Pan American received a retroactive increase on its Bermuda route, from \$.00001 per pound to \$1,700 per trip, which resulted in it performing only 22% of its three-year contract. And Congress granted the money to pay it. Pennsylvania-Central Airlines, although not receiving a retroactive increase, did not complete its contract between Washington and Buffalo at \$.00008 per mile. Money for these increases was approved by the Comptroller General—also a representative of Congress.

The attitude that the contracts should be completed is a strange one. There are no contracts to complete. The Civil Aeronautics Act plainly states that "each such contract shall be cancelled upon the issuance of a certificate of convenience and necessity to the holder of such con-

tract . . ." Practically all companies received certificates many months ago.

And there is plenty of support for the payment of retroactive increases. The Act instructs the CAB to make rates effective "from such date as it shall determine to be proper." The United States Supreme Court in a railroad case said "if the claim of the railroads is just they should be paid from the moment when the application is filed."

We certainly hold no brief for infinitesimal bids, and Congress is right in condemning them. Neither does TWA nor any other company favor such bids. But it should be remembered that they resulted from the vicious competitive bidding system established by the very Congress that now calls them fraudulent. The Post Office never said they were fraudulent or illegal. It even ruled that a \$.00 bid was legal.

But Export and TWA are only part of a great industry. Is the CAB to be slapped down every time it sets a fair and reasonable air mail rate for this industry? Are retroactive payments out? Will Congress stop every new route it doesn't favor by refusing to appropriate mail pay funds? Are politics coming into aviation?

These are big questions. They point to the more important one: Where does this lead? Again we say the CAB doesn't know. The industry doesn't know. We certainly don't know.

We hope Congress has the answers.

Good From Evil

THAT evil demon, the law of gravity, will always be hanging around the world of aviation, waiting for a chance to exert his devilish proclivities, and his assistant, the law of force meeting immovable bodies, will be close at hand to help.

But if from these dual evil manifestations some good arises, then the world of aviation is the ultimate winner, albeit the tragedy of human loss is a grievous element in the situation.

We are thinking right now of the most recent misfortune to come upon an airline, the crash of the Mainliner near Salt Lake City. Reports indicate that CAB representatives are cooperating wholeheartedly to place the cause of the accident which at first study seems to have been the fault of an improperly operating radio range station.

For many long months it has been the hope of the industry that in addition to the installation of fan markers and additional radio aids of a similar nature, the modernization or replacement of the old radio range stations could be accomplished by the CAB.

So it does seem that if, as a result of this Salt Lake City tragedy, there can be additional emphasis put on the essential need for the improvement of radio range accuracy through modernization or new construction, then verily good shall have come out of evil.

In any case, it is heartening to note that the CAB, sans Safety Board, is going into the study of the Mainliner accident with all zeal.

Opportunity

ON NOV. 8, Pan American-Grace Airways launched a local air service between Quito and Guayaquil, Ecuador, with three stops at small towns. Few enough people know where Quito is, much less the location of the stops to be served, but this new little local service, only a few hundred miles in length, is of significance in the South American aviation picture.

The significance comes from the fact that Panagra is now paralleling a local route operated exclusively heretofore by Sedta, an airline wholly owned and operated by Germans. Sedta is only one of the network of German airlines now operating in almost every section of South America. The smallest of all the German companies, it has only one tri-motor Junkers 52 and one single-engine Junkers. But its business has been good and it manages to maintain offices in Quito, capital of Ecuador, which are rather expensive for such a small operation.

The importance and extent of German airline operation in South America is something not to be overlooked these days. Until World War II, Air France was a factor and the Italians and British had plans of invading this promising territory. But since the war got underway, Air France has closed up (but may re-open under German control), the British plans faded, the Italians launched a trans-Atlantic line as far as Rio de Janeiro, and the Germans dropped their trans-Atlantic air mail service in favor of maintaining their internal and international routes within the South American continent.

The rivalry today is, thusly, between the Pan American Airways System and the various German routes, of which Sedta in Ecuador is only one. If this rivalry were within the same arena, it wouldn't be so bad. But the Germans are playing a different game with a different set of rules. Every

German govern
Ticke
Sedta's
great se
a luxuri
It is
represen
are con
sees Ju
America
U. S. is
But I
up and
lets for
the futu
geograph
in South
It is c
a comm
passenge
losses ar
Pan Am
superior
acts Ger
Now
South A
only uni
agents f
German
one wise

THE
of
operation
than mo
deeply f
respect
composit
one of i

WART
offici
pilots. I
the gover
tactical o
the air fo
Two in
weeks: on
concerni
Departme

The
by th
air f
repre
of the
forces
and
date

Throug
has repre
in aviatio
pected to
Corps po
Arnold.
vision of
rank of I
four field
Air Corps

In effec
as the oth
effectiven
through c
relieved
the Air C

By 194
maturity,
United St
northwest
the Panam

German company cuts rates, gives discounts, gives free transportation to government officials, and operates under sub-standard conditions.

Ticket offices are pretentious for their surroundings—that is to say that Sedta's electric sign on the front of its Quito office would not be any great sensation in Houston or Cleveland, but in Quito an electric sign is a luxurious embellishment not common to most store fronts.

It is very doubtful if any of the German airlines in South America represent even a slight military hazard to the U. S. now, although they are competing in a business way with a private American company. One sees Junkers and Condors, both German-made transports, all around South America. But their total number is relatively unimportant as far as the U. S. is presently concerned.

But later on, then what? The Germans have established their routes up and down and across South America. These lines will be logical outlets for the hundreds of German transport planes used in the war. It is the future that should seriously concern the U. S. There is no possible geographical reason for any European power operating internal services in South America.

It is doubtful if a single German airline in South America operates at a commercial profit. Revenue passengers carried are few, but non-revenue passengers are plentiful. Mail carried on these lines is very light. Their losses are made up by the German government. Thus, competition which Pan American faces, as a commercial airline, is not easy, although PAA's superior service with Douglas planes has brought a prestige which counteracts German discounts.

Now is the time when the U. S. should expend every effort to free South America from German airline influence, for these airlines are not only unfair competition in a business way but they act as propaganda agents for the Nazis in opposition to the U. S. Forcible sale of the German lines to local South American or American companies would be one wise move, and a very cheap one in the long run.

A Heavy Loss

THE editor learned three weeks late while traveling in South America, of the untimely death of Pat Higgins, vice-president in charge of operations of Delta Air Lines. There was no finer man in aviation than modest, unassuming and able Pat Higgins. His loss will be deeply felt by both Delta and the industry. He commanded the sincere respect of his men and his colleagues. His character was of that sterling composition so difficult to measure in mere words. Aviation will miss one of its very best.

Capital Notes

WARTIME FLYING as preparedness problem has been reckoned by federal officials over the past year primarily in terms of numbers of planes and pilots. Now when procurement and training programs are well underway, the government is beginning to turn increasing attention toward methods of tactical operations in the air and organization—or rather reorganization—of the air forces for greater efficiency and mobility.

Two important developments along these lines have occurred in recent weeks: one military, involving changes in the Army Air Corps, and one civil, concerning appointment of an Aeronautical Advisory Council for the Commerce Department.

The recent changes in the set-up of the Air Corps were precipitated by the elections and by pressure from some quarters for a separate air force. But they were not inspired by these influences and represent rather the first results of concentrated planning on the part of the War Department in an effort to modernize the military flying forces. Although the situation is still somewhat in a state of flux and development, the major revisions in Air Corps organization to date can be briefly summarized as follows:

Through Gen. Arnold as new deputy chief of staff, the Air Corps now has representation on the general staff by an officer thoroughly experienced in aviation and its peculiar needs. While purely routine matters are still expected to go through the regular general staff officers, all questions of Air Corps policy and special aviation problems will now be handled by Gen. Arnold. Meanwhile, the GHQ Air Force is now returned to the direct supervision of the general staff and command by Delos Emmons, elevated to the rank of lieutenant general—the same status as the commanders of the other four field armies. Gen. George H. Brett has been appointed acting chief of the Air Corps, succeeding Gen. Arnold.

In effect, the combat air force is thus placed under the same top command as the other branches of the Army in line with the policy that best military effectiveness is achieved through coordination of air and land operations through centralized control. Simultaneously, the combat or GHQ Air Force is relieved of the burdens of procurement and training, for which the chief of the Air Corps is responsible.

By 1942 when both equipment and personnel are expected to reach full maturity, the air force will comprise 54 combat groups. The continental United States is being divided into four air divisions—northeast, southeast, northwest and southwest—and three overseas air departments—one each for the Panama Canal, Puerto Rico and Hawaii. Also, the four wings will be in-



"So! You stopped at the farm to see your folks!"

creased to 17, one for the three foreign departments and 14 for the four air divisions. Each wing is expected to be made up of from 55 to 250 planes, all of the same type in any one wing, together with an air base group, composed of the necessary mechanics, communications, weather and similar facilities.

Similarly, the effects of wartime operations on civil flying are receiving full federal recognition and constitute the basic reason for the appointment recently of the new Aeronautical Advisory Council composed of outstanding leaders in commercial aviation. This council has already held two formal meetings in Washington, several informal ones, and is laying the groundwork for a serious and vigorous effort.

Although the by-laws of the council are modeled after those of the business advisory council, the aviation men which make up its membership have insisted upon the freedom of initiating any project they consider necessary, unlike the business council which could function only when called upon by federal officials. The executive committee is now forming subcommittees which are being established along functional lines as permanent groups to which special problems may be referred as they arise. Among subjects already on the agenda for investigation and report to the Commerce Department are such matters as further airport expansion and control, organization of a civil air reserve, coordination of military and civil aviation, licensing of aircraft, pilot training, and other phases of civil aviation which require expert planning in advance of actual participation in war.

* * *

CONGRESS WILL PROVIDE more money for air defense after the new session convenes in January. Already reports are growing thicker as to where additional funds will go, although the Treasury has not yet even made up the budget for the coming fiscal year. The President recently verified the story first published in AMERICAN AVIATION DAILY that substantial additions to the Army air force would be requested to bring air strength up to his original recommendation of 30,000 planes.

Almost as certain as an appropriation for 20,000 or more new planes is the expectation of large new appropriations for further airport expansion. Although CAA lost half of its \$80,000,000 request for airport construction funds in the last appropriation bill, because of an unfortunate political accident, the agency is expected to approach Congress again with chances favorable of recovering the loss.

Meanwhile, the special joint Army-Navy-Commerce airport committee has yet to announce the selection of the 250 airport sites which will be developed with the money recently provided.

* * *

FOREIGN AIRCRAFT BUYERS have received little notice in the press because of the spectacular new purchasing programs of the British. Nevertheless, there is more activity now by other countries seeking military planes here than has occurred for some months past. Among those particularly interested in obtaining American planes—if only the Army and Navy will grant them production facilities in our factories and the State Department licenses for export—are Greece, Yugo-Slavia and Siam, the Dutch East Indies, Russia, Turkey, Iraq and Iran.

Furthermore, the Latin American nations are expected to move rapidly and rather heavily into the aircraft market in coming weeks, particularly in purchases of training planes which are badly needed there. Whether the facilities of the expanded Export-Import Bank will be extended to them for the financing of military supplies remains to be seen. At least, legislation allowing loans to buy combat planes has been enacted. It is thought, too, that this country may encourage procurement of airline equipment here by Central and South American countries, primarily to cement good relations and counteract fifth column activity in the Western Hemisphere, yet at the same time to gain a foothold in this market for American manufacturers against the day when the war ends and competition is again thrown open to European producers.

Folks Worth Meeting—

ONE of America's best known families has found a high place in American aviation through Cornelius Vanderbilt Whitney whose colorful career includes service as a World War flying instructor at 17, ore digger deep in the Comstock mines of Nevada, mining promoter, owner of one of the country's leading race horse stables, and board chairman of Pan American Airways.



Whitney

Today, "Sonny" Whitney is playing an important part in America's national defense program, thereby following in the footsteps of his grandfather who inaugurated this country's big Navy policy as Secretary of the Navy under Cleveland. Together with Pan American and the U. S. government, Whitney is now working on secret defense plans for the Caribbean and South America as well as armament metal research for the War Dept.

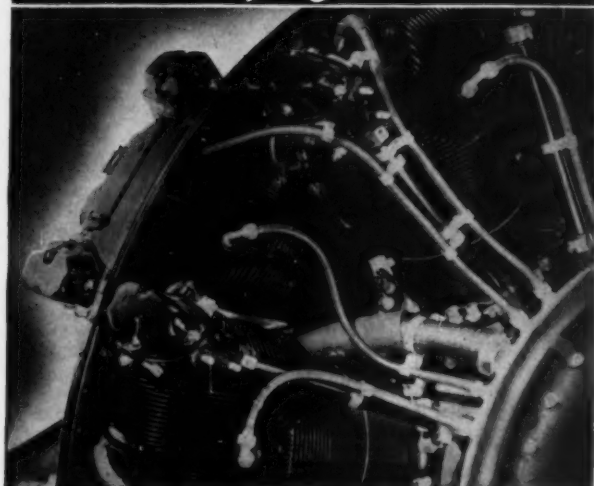
Whitney's role in American defense and in aviation as well began at the age of 17 when he enlisted in the Signal Corps, which at that time handled the microscopic U. S. Air Force. He was soon transferred to the Royal Flying Corps which was helping train American flyers in Texas. There, after an hour and forty minutes in-

struction, he completed a successful solo flight and became the youngest instructor in the U. S. Air Corps during the war.

Following the armistice, Whitney enrolled in Yale, and upon graduation went to the Comstock mines in Nevada to learn mining from under the ground up. After rising to assistant foreman, a position which he resigned to work in other mines throughout the West, Whitney, together with Roscoe H. Channing, Jr., well-known mining engineer, managed to salvage more than a million dollars from a series of mining ventures previously written off as dead loss. Whitney then proceeded to use his capital in solving the problem of making low-grade ore in Northwest Manitoba pay. Following a year of experimentation, a process was discovered. Whitney hurried to Canada, obtained an option on an ore deposit and set to work. Today he is chairman of the board of the second largest zinc producing and the third largest copper producing mine in Canada.

Whitney carried the same kind of vision and ability into Pan American Airways which he helped found in 1927 with Juan Trippe, John Hambleton, Grover Loening, Sherman Fairchild and W. H. Vanderbilt. Whitney himself helped in the company's exploration work as Pan American grew. Under his leadership, Pan American has risen to a position in which it employs more than 5,000 persons in 55 countries and has become a powerful factor in building good will for the U. S. in Latin America.

Shielding's Job...



Shielding must prevent interference to radio reception; must be light, flexible, corrosion resistant, easily disassembled; must afford lasting protection. Pioneer designers for aircraft, ordnance and marine equipment, Breeze is ready for present defense requirements with shielding which does its job.



Standard Breeze Conduit
in Sizes from 1/8" to 2 3/4" I. D.

Breeze
CORPORATIONS INC.
NEWARK, NEW JERSEY

Pro, Con and Otherwise

To the Editor:

APPEARING in your Nov. 1 issue of AMERICAN AVIATION is an editorial on the Philadelphia Airport. It seems to me, and to many others who read the article, that it apparently was printed without consideration for the future of this important development which potentially can employ 25,000 men in aircraft factories surrounding it.

In the first place, the airport was opened prematurely in order to permit the airlines to land, as the larger ships could not come in at Camden. It was not opened as a commercial airport other than for the use of the runways, administration building, and other facilities necessary to airline operation; hence the reason for the lack of facilities for private flyers.

As to the treatment extended to the flyers—this would have to be referred to the manager of the field—and I feel sure that Director Neeson would not interfere regarding the courtesy shown at the airport.

As to the closing of the tower incident—that also rested in the hands of the manager, who, by a slight rearrangement of schedule for the men, would have eliminated this unnecessary incident.

Regarding leases on restaurants, etc., you can't lease a building until it is built; and you can't build it until the necessary money is appropriated for that purpose. However, these are to be built—and commercial hangars also—as soon as additional funds are granted. You must remember that the airport is still in the progress of construction, and under the supervision of a capable

engineer (not a politician), Director of Public Works John Neeson.

The fact remains that airline officials, airline pilots, and other experts in the business have declared it to be one of the finest airports in the country. It therefore seems a shame that your publication should attempt to give it a 'black eye' when there is no question but that you have listened to one side of a two-sided story.

The size and location of the Philadelphia Airport—with the great areas of adjacent territory—make it one of the finest propositions of the aircraft industry that we have in this country. We are anxious to have aviation factories locate here, and we will do anything within our power to make it worth while for them to do so, and certainly articles such as you have printed will not help us either in this matter, or in bringing new business to the airport itself.

I have always admired your publication, and I still do not believe that it is your policy to be unfair in your editorials. Had you gone further into the issue—and heard both sides—I know that you would not have printed this article, and I felt that it should not go unanswered.

I sincerely hope that, after reading this letter, you will, in your next issue, devote as much space to an article that will be helpful to the airport—and not one that sounds as though it was written by one who has a personal grudge. I think you owe Philadelphia this consideration.

E. BURKE WILFORD
President, Pennsylvania Aircraft
Syndicate Ltd.

Aero Bookshelf

FLIGHT 17, by Henry B. Lent; Macmillan Co., 60 5th Ave., New York, N. Y.; 96 pp.; \$1.

Because it is written in simple language completely avoiding the technical terminology so frequently confusing to the layman, *Flight 17* is one of the best books on airplane flying to be published recently.

Written from the viewpoint of the airline passenger, *Flight 17* describes accurately and vividly a flight from New York to Chicago on the "American Arrow" from the time passengers arrive at the terminal to board their Flagship until they leave it in Chicago.

The book devotes considerable space to what takes place at a big airport; how the huge aircraft are serviced in the hangars; how flight conditions are mapped and flight plans carefully worked out; how airways traffic is carefully and methodically controlled; how the radio beam is used, and how transport planes are serviced with food and other supplies for the convenience of the passengers.

Lent's book will be welcomed by young readers who these days are pestering their elders for information about planes, and it will answer most of the questions in the minds of all those who are interested in air transportation either for business or pleasure travel.

AERIAL PHOTOS, by Claud J. Dry; Aircraft Directory, Athens, O.; 66 pp.; \$1. Facts and figures don't always make absorbing reading. For that reason the author has kept them at a minimum in this little book written principally for the Sunday afternoon snap-shooter who does his own darkroom work. Covering the subject from kite shots to aerial mapping, the book contains information which an amateur or professional pho-

tographer would need in order to get started in the still new field of aerial photography.

In addition to information on such subjects as uses to which aerial photography can be put and how to convince the prospective buyer of these facts the author discusses the tools and materials of the art in a competent and readable manner. The book is that combination of the classroom and practical experience which could be produced only by one thoroughly versed in the subject. For the man who would like to cash in on his knowledge of photography, this book is a reliable introduction to an absorbing and highly specialized branch of the field. W. G.

AIRCRAFT AND ENGINE MECHANICS' MANUAL, by Charles A. Zues; lithographed by McKnight & McKnight, Bloomington, Ill.; 156 pp.

Presented in catechetic form, the text is designed to prepare applicant for training as an airplane and engine mechanic and contains the three subjects on which every applicant is examined: Civil Air Regulations, Aircraft and Aircraft Engines. Included in the manual are 56 pages of diagrams and tables, and nine pages of sample questions that have in the past been asked on written examinations for mechanics.

Author is an instructor in U. S. Army Air Corps, Grand Central Air Terminal, Glendale, Cal.

AIRCRAFT INSPECTION METHODS, by N. C. Bartholomew; Pitman Publishing Corp., 2 W. 45th St., New York, N. Y.; 139 pp.; \$1.25.

Author Bartholomew, of the Curtiss Aeroplane Division of Curtiss-Wright Corp. at Buffalo, N. Y., points out that the prime purpose of this book is to instruct the beginner, the student and the mechanic in the essential requirements

Air Corps Gets Observation Type



The Stinson O-49, undergoing test by the Army Air Corps, is one of a number of such ships for which the Nashville Division of Vultee Aircraft Inc. was awarded a contract in the amount of approximately \$2,000,000. The craft is a short-range, observation-type ship powered by a 280-hp. nine-cylinder 13-cylinder. Fuselage is of steel-tube construction, fabric covered. Wings are of metal and have a span of 51 ft. Plane is 9 ft. 4 in. high and 32 ft. 2 in. long, with a gross weight of 3,237 lbs.

This type of observation plane has been developed particularly for use with the infantry and artillery for field liaison and observation. The O-49 is a two-place, unarmed plane equipped with radio, flaps, wing slots and steerable tail wheel.

of an airworthy airplane as well as in methods of determining when such conditions are met. No attempt has been made to describe the methods used in fabricating, assembling or repairing airplanes except where required to describe properly inspection routine.

Chapter subjects cover materials of aircraft construction; corrosion control; inspection of machine parts, joints, wing erection, cowling, etc.; the military airplane and armament, and inspection organization and control.

Included in the book are 43 figures, 41 illustrations and eight tables.

Advisory editor is Prof. Alexander Klemin of the Daniel Guggenheim School of Aeronautics, New York University.

BAUGHMAN'S AVIATION DICTIONARY AND REFERENCE GUIDE, by Harold E. Baughman; Aero Publishers Inc., Glendale, Cal.; 598 pp.; \$5.

This is one of the most complete and readable reference books published to date, and bears out the author's explanation that it is intended to "provide a ready storehouse of aviation knowledge for use by those associated with or interested in the industry."

In addition to a complete dictionary, the 598-page volume contains information on specifications, general aeronautic abbreviations, flight maneuvers (illustrated), civil air regulations, Weather Bureau data, a listing of airplane, glider, lighter-than-air and engine manufacturers, repair stations, accessory manufacturers, flying and ground schools, colleges and schools offering aeronautical courses, aeronautical books, publications and house organs, organizations, clubs and societies, an interesting section on aeronautical occupations, information on drafting, lofting, shop mechanics, design standards, primary stress analysis, general structural symbols and formulae, and many useful tables.

Many sections of Lockheed Aircraft Corp.'s drafting room manual and design handbook were used verbatim. The author was also assisted by numerous other manufacturers in the preparation of the book.

In the foreword, Robert E. Gross, president of Lockheed, states that the volume "definitely fills a long felt need in the field of aviation."

E. B.

ARC WELDING, Published by Hobart Brothers Co., Troy, O.; 218 pp.; 50c.

This manual is compiled from Part II of the large Hobart book *Arc Welding and How to Use It*. It is used in the Hobart Welding School and other trade schools, colleges and technical institutes as a textbook.

METEOROLOGY FOR AVIATORS, First American edition, by R. C. Sutcliffe; Chemical Publishing Co. Inc., 148 Lafayette St., New York, N. Y.; 276 pp.; \$4.

This valuable volume is rightly described as being "for those aviators who wish to make themselves masters of the subject for success and efficiency in their profession, but who have neither the time nor the basic scientific train-

ing to study the whole literature of meteorological science."

The book, well illustrated with pictures, charts and drawings, avoids mathematical formulae as far as possible. It is divided into three parts: meteorological organization, general meteorology and weather forecasting, and climate. A 27-page addenda contains instructions for the preparation of weather maps, with tables of the specifications and symbols.

E. B.

AIRCRAFT DIESELS, by Paul H. Wilkinson; Pitman Publishing Corp., 2 W. 45th St., New York, N. Y.; 271 pp.; \$6.

This issue of *AMERICAN AVIATION* carries a news story concerning material in *Aircraft Diesels*. See page 3.

AIRPLANE METAL WORK; Vol. 1—Airplane Blueprint Reading, by Alex M. Robson; D. Van Nostrand Co. Inc., 250 4th Ave., New York, N. Y.; 58 pp.; \$1.15.

The author, head of the aero department of Hadley Technical High School in St. Louis, Mo., has prepared this textbook for aircraft mechanics engaged in the industry and allied workers who desire to enter the aircraft industry.

The work is recommended for:

1. Pre-employment, trade extension and rehabilitation training of workers for aircraft factories, airline repair depots and military aircraft repair stations.
2. Vocational training in public trade, technical and secondary schools; private aviation trade schools; U. S. Army Air Corps training centers and repair depots, and U. S. Navy training centers and reserve stations; and other U. S. government agencies such as the National Youth Administration and the Civilian Conservation Corps.

YP-43, Douglas A-20A

Delivered to Air Corps

Delivery of the first Republic YP-43, single seater pursuit plane, and the first Douglas A-20A, light-bombardment plane, has been announced by the War Dept.

The YP-43, a modification of the Republic P-35, is an all-metal, low-wing monoplane powered with a Pratt & Whitney 14-cylinder engine. It weighs approximately 6,900 lbs.; has a wing span of 36 feet; length, 28 ft. 3 3/4 in.; and height, 10 ft. 3 in., with a chord of 74.56 in.

The A-20A, which carries a crew of three, is an all-metal, mid-wing monoplane, of monocoque construction, powered by two Wright, 14-cylinder two-row radial engines, each with three-bladed propellers. It has a wing span of 61 ft. 4 in.; length, 47 ft. 7 in.; mean chord, 100.23 in.; and gross weight, 19,050 lbs.

Procurement Inspectors Needed

A call for Air Corps procurement inspectors for aircraft, engines, instruments, propellers, parachutes, tools and gages has been issued by the Civil Service Commission. Positions as junior procurement inspector, a newly-created post, are also available.



POWER...

Kinner engines produce greater propeller efficiency for two reasons—they operate at low r. p. ms.—and they develop their full rated horsepower. For these reasons Kinner Engines can be equipped with propellers of such dimensions and characteristics that climb and maneuverability are definitely improved in any airplane. You can feel the plus of Kinner power when you fly it.



100 H. P.
125 H. P.
160 H. P.

KINNER MOTORS, INC.
GLENDALE, CALIFORNIA, U. S. A.

Pressure on Manufacturers

(Continued from page 1)

ditional planes and armaments, but liberalization of credits to the United Kingdom through amendment of the Johnson Act, exchange of supplies for strategic materials, or other means.

Although doubt has been expressed that the aircraft industry can undertake the vast new British program in addition to the tremendous business both current and potential for the air services, industry representatives are confident that the whole job can be done within the required time by the wider spreading of subcontracting, similar to the recent move in this direction by Douglas Aircraft Co.

The new Air Corps procurement program for 20,000 additional aircraft will be presented soon, it was learned late in October. This would bring total air service strength up to President Roosevelt's recommendation last Spring of 30,000 service planes. Whether this top figure will be exceeded by additional aircraft for the Navy was not yet certain.

The President told reporters at his press conference on Nov. 8 that he has said down a rule of thumb to all government and Defense Commission officials that Britain and Canada together should receive about half of U. S. munitions production as it comes off the line. In answer to a question, he asserted specifically that this included aircraft and the Boeing Flying Fortress. He pointed out that the general rule is to be flexible, and that there will be certain exceptions. These latter were not explained, however.

Plans for the production of 12,000 bombers by the auto industry were included in a new \$500,000,000 plane building program. War Dept. officials were unable to anticipate how soon detailed drawings will be ready for study by the auto industry, preparatory to the production of the bombers of two standardized types. They said informally, however, that the equipment desired is out of the research stage.

A proposal by William S. Knudsen, defense commissioner, calls for 12,000 bombers for the U. S., while the President's proposal was expected to provide for 12,000 miscellaneous planes for England. In some quarters it was believed the figures may include some duplication, "or that the whole of a three-year program somehow got out just before election," as expressed by John W. Love, writing for Scripps-forward newspapers.

FDR Makes Promise

The President, in a campaign speech at Boston on Oct. 30, nonchalantly gave

promise of 12,000 U. S.-built bombers for Britain in addition to the 14,000 military craft already on order in this country for the Royal Air Force. The 12,000 bombers, it was believed, will be built wholly or in part by the automotive industry's set-up which is now taking form.

Under the 20,000-plane fund for the Air Corps, this number would include:

1. 8,000 heavy two-engine bombers.
2. 4,000 heavy four-engine bombers.
3. Balance of 8,000 will be medium bombers.

If the government intends that these 8,000 medium bombers be made outside the aviation industry, it has not given indication of it as yet.

The total fund of \$2,000,000,000 includes \$500,000,000 estimated as required for the manufacture of bombers by the auto industry. The balance, \$1,500,000,000, probably will go for the 8,000 medium bombers and for aircraft engines, accessories and equipment to be required in the 20,000-plane program.

From one source it was understood that the 12,000 bombers which Roosevelt said would be given priority rights for the British would be those for which the auto industry would make parts.

In a further move to expedite aircraft production, the government, according to plans now under consideration, would build two government-owned plants for assembly of the two standardized types of bombers to be made in Detroit—one unit for each type of aircraft. The government would retain ownership of these facilities but would probably lease them out for private management.

Program Requires Weeks

It will be weeks before details of the aircraft-automotive program can be developed to a point where automobile and aviation representatives can get down to the actual business of discussing production and positive adaptations both of plane designs for mass methods and of automobile plant facilities to undertake manufacturing.

The auto industry, however, acting on request of Defense Commissioner Knudsen, has already appointed an organization committee. Also at Knudsen's request, the Detroit group expects to work with a similar committee from the aviation industry. Knudsen has asked the Aeronautical Chamber of Commerce to organize a committee of military air-

Nine Months U. S. Civil Aircraft Production

	January-September 1939	1940	Percent of increase or decrease
Landplanes:			
1-2 place:			
Single engine	2,247	3,631	+61.6
Multi engine	2	2	.....
3-5 place:			
Single engine	314	734	+133.8
Multi engine	5	8	.....
6-20 place:			
Multi engine	14	21	.....
22 place and over:			
Multi engine	46	93	+178.3
Seaplanes:			
Single engine	32	17	.....
Multi engine	8	0	.....
Amphibians:			
Single engine	0	1	.....
Multi engine	0	1	.....
Unclassified	30	35	.....
Total single engine	2,593	4,383	+69.0
Total multi engine	75	125	+66.7
Grand Total	2,668	4,543	+69.7

plane manufacturers to work out details with the automotive industry.

At a meeting in Detroit of auto manufacturers, the following were designated to be the committee on cooperation with the National Defense Advisory Commission:

Representing passenger car manufacturers:

ALVAN MACAULEY, chairman of the board, Packard Motor Car Co.
EDSEL FORD, president, Ford Motor Co.

K. T. KELLER, president, Chrysler Corp.

C. E. WILSON, acting president, General Motors Corp.

Representing parts and equipment manufacturers:

C. C. CARLTON, vice-president-secretary, Motor Wheel Corp., with L. D. ADAMS, vice-president, Associated Spring Corp., as alternate.

The auto industry will turn out new motor car models next year, Pyke Johnson, executive vice-president of the Automobile Manufacturers Association, has said, but due to the shortage of machine tools, will make no fundamental changes, confining alterations largely to "face lifting" by changing colors, lines, etc. He added that the industry did not expect the question of production to be materially affected as far as it is possible to tell at this time.

Subcontracting Discussed

Representatives of several automobile body manufacturing plants have been conferring with officials of Douglas Aircraft viewing possibilities of taking on national defense work on aircraft parts under subcontract. Present discussions are to determine the feasibility of constructing the larger structural parts making up wings and fuselage in eastern body plants under a subcontract arrangement.

Clarence Avery, president of Murray Corp., has been in the west and has had preliminary discussions with Douglas officials relative to subcontract work.

Three motor car companies are already in the aircraft engine production field: General Motors, Packard and Ford. Johnson stated that Packard, which is now tooling up, expects to be ready for production by mid-Spring.

It was reported that contracts for the two- and four-engine bombers will be let next Spring. Gen. George H. Brett, recently appointed acting chief of the Air Corps on the elevation of Maj. Gen. H. H. Arnold to the War Dept. General Staff, told the automotive meeting in Detroit that the Air Corps would send to Detroit not only blueprints but "actual parts of the plane types to be manufactured," according to the AMA. The auto committee will inspect the plants now making these models, it was said.

Huge British Plans

The estimate of 12,000 additional planes for the British aroused little sur-

prise in Washington aviation circles, the general belief being that actually this preliminary figure is only the beginning of another tremendous buying program. It will be remembered that Secretary of the Treasury, Henry Morgenthau Jr., revealed in July that Britain had asked informally if this country could furnish 72,000 planes in 1941-42. Although such an enormous output for a two-year period now seems unlikely, it is cited as an indication that the British are thinking in huge figures.

Part of the new British program involves production of 4,000 four-engine bombers, possibly those mentioned above under plans for auto plant production. The Air Corps is understood to be somewhat reluctant to standardize such a ship at this time since production of the new Boeings with heavier armament and power-driven turrets has hardly started. Some Army officials would prefer to postpone mass produc-



THREE REASONS why aircraft engineers use Elastic Stop Nuts...

1. Sound in Principle.

Resilient locking collar holds with a grip that cannot be loosened by vibration, shock, or heavy duty.

2. Proved in Service.

Thirteen years of successful application to aircraft... now used on all American military and transport planes, and on most foreign planes.

3. Economical.

Single-unit construction, and automatic self-locking action, save man-hours... both in original application and in maintenance.

• Write for Catalog

ELASTIC STOP NUT CORPORATION
2328A VAUXHALL ROAD, UNION, NEW JERSEY

Elastic Stop SELF-LOCKING NUTS

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders...



MICA INSULATED SPARK PLUGS

THE B.G. CORPORATION

136 W. 52nd St.

New York

To a
Avi
Well
with
Milita
Aviati
Adver
Seeks

Ameri

Sub-Contractors

HAMMOND
AIRCRAFT CORP.

Michael C. Casserly, assistant secretary; Joan B. Hammond, vice-president, and A. A. Jones, president, of Hammond Aircraft Corp., South San Francisco, Cal., are busy with sub-contracts, having made bids on sub-assembly work from major aircraft companies.

Jones is a newcomer to the aircraft industry, having given up a practice at law to become head of the corporation. Hammond is well known as the designer of the Hammond Model Y, which later became the Stearman-Hammond Y-1-S. Casserly has been identified with the aircraft business in San Francisco for the last seven years. Hammond Aircraft was organized in December of 1939 when the manufacturing facilities of Stearman-Hammond Corp. were purchased by a new group headed by Jones.

tion of this type until it has undergone more extensive testing.

The Administration is convinced that both this type and other bomber models must be frozen without delay in the interest of speed of production. Also, the Administration is adamant in its insistence that the British and the Air Corps reconcile their differences so that production delays due to changes for one or the other can be eliminated.

Ted Lynn Resigns

Ted Lynn, president and treasurer of Aircraft Accessories Corp., Los Angeles, recently announced his resignation to engage in the formation of an undisclosed aviation manufacturing company.

Pesco Model 437



Decreased weight (24 lbs.) with increased efficiency are the features emphasized in the new hand pump, model 437, announced by Pump Engineering Service Corp., Cleveland, O. New pump embodies a saving of 38.5% in weight over previous equipment items of similar type and purpose. Model 437 has been proposed for emergency use in hydraulic systems and not for continuous operation.

To a Major Operator or
Aviation Manufacturer

Well known Pilot-Executive with 24 years experience in Military and Commercial Aviation, Sales, Contact and Advertising Background, Seeks New Connections.

Write or Wire

American Aviation Box 320

E. R. Perry Named
Ass't to President
of Boeing Aircraft

E. R. Perry, who has served in managerial and executive capacities with several leading U. S. manufacturing and sales organizations, was named executive assistant to P. G. Johnson, president of Boeing Aircraft Co., on Nov. 3.

In the newly-created position, Perry will assist in the executive and administrative work of the president's office.

Companies with which Perry has been associated include Eastman Kodak. Bullock's department store of Los Angeles, Flintkote Co. of New York, and Talon Inc., where he has been a management executive for the past three years.

Born in Bellingham, Wash., he attended high school in Seattle, and studied mechanical and electrical engineering at the University of Washington, being graduated in 1913, magna cum laude. After graduation, he joined Puget Sound Power and Light Co. as an electrical engineer. During World War I he was an officer attached to the personnel section of the Army General Staff.

Perry subsequently joined Eastman Kodak as supervisor of employment and safety, and has since gained experience in managerial work in various parts of the country, leading to his position with Talon Inc.

'Bail Out' Signal

A "Bail Out" signal capable of giving adequate and instantaneous warning to the crew, in case of emergency, has been introduced by Lear Avia



Inc., Dayton, O. Weighing 1 1/4 lbs. and available for operation off of either 12 or 24 volts, the siren emits a shriek loud enough to be heard by every member of the crew, regardless of his position in the ship.

Pension Plan

(Continued from page 1)

Past service will be recognized by annuities to be purchased outright by the company without employees being required to share in the expense, Patterson said.

Participation in the plan will be voluntary. However, it will be necessary for 75% of the employees to join in order to make it applicable.

For the two-fold purpose of keeping the company's contribution within reasonable limits and of preventing participation on too large a scale, the employee's contribution is limited to 3% of his annual salary. This includes the 1% federal social security, however. In the event this 1% is increased in the future, the plan will be revised.

For every \$3 contributed by an ordinary employee, he gets back \$1 a year in an annuity for every year after he reaches the retirement age. This is possible because of the company's participation. Pilots, because of lower retirement age, receive about \$1 for every \$5.

If an employee quits or is discharged, he can draw out all his contributions plus 2 1/2% interest. In this respect, the plan is considered to be unusually fair.

Discussion of the plan with employee groups were to be held as this issue went to press, and it is expected that it will go into effect Jan. 1.

United also maintains personnel group life insurance and free employee training. In addition, surgical insurance has been added during the past few weeks.

Hamon Heads Shell Oil's
Aero Activities in East

A. J. M. Hamon has been placed in charge of aviation activities east of the Rocky Mountains for Shell Oil Co. Inc., Alexander Fraser, president, has announced.



Hamon

Hamon's experience in aviation began over 15 years ago and since then he has flown over 150,000 miles. He is a member of the Institute of the Aeronautical Sciences, the Society of Automotive Engineers, the Aeronautical Education Commission of New York City and the Quiet Birdmen.

In 1930 he joined Shell's aviation department, and in 1936 was made manager of the eastern marketing territory. He held the latter position until the recent merger.

Joins Adel

Harold Webb has joined Adel Precision Products Corp., Burbank, Cal., as assistant to the president. He was formerly with Vega Airplane Co. as assistant to the president.



Thomas Resigns

Harold B. Thomas, one of the founders of Elastic Stop Nut Corp., Union, N. J., and vice-president in charge of sales, has resigned to enter consulting work in industrial product analysis and market research. He remains active as a director and member of the executive committee of the corporation.



BUYS WELSH ASSETS

Aircraft Corp. of LaPorte Will Continue Operation of Firm at Wilkes-Barre

All assets of Welsh Aircraft Industries Inc., Wilkes-Barre, Pa., have been purchased by Aircraft Corp. of LaPorte, Ind., it was revealed recently.

The Wilkes-Barre concern will continue operation in that city under the new ownership and management. Merger was undertaken to increase production and bolster credit, it was said. A new plant, for manufacture of lightplanes, is expected to be built at Wilkes-Barre Wyoming Valley Airport.

Officers of Aircraft Corp. include Ray Kuhl, president; H. F. Garton, vice-president, and J. J. Donnellan, treasurer.

Parks Orders 4 Stearmans

Four new Stearman primary trainers of the type used extensively by both Army and Navy have been ordered by Parks Air College, East St. Louis, Ill., and are expected to be in service by Jan. 1. Oliver L. Parks, president, has announced. Parks indicated these are the first Stearman planes of this type to be sold for commercial use and will increase the Parks Air College fleet for commercial student training to 22.

BOEING SCHOOL STUDENTS LEARN

BY SIGHT AND BY TOUCH

EVERY PART OF MODERN AERONAUTICS



Maintenance Shop contains complete equipment for aircraft maintenance: Lathes, grinder, drill-press, portable buffer, welding and battery rebuilding, sheet metal, cadmium plating apparatus; starter, generator, carburetor, magneto, and spark-plug testing equipment.

Boeing School graduates

are making good today with 48 different companies and are in such demand that many of them have positions waiting for them on graduation.

Says Walter E. Gilbert, Divisional Superintendent, Canadian Airways, Ltd., "There seems to be a 'certain something' your school imparts to the men trained at Oakland which gives them not only the sheer technical skill but also a degree of poise and balance which makes it possible for them to fit into an organization."

Thoroughness of training in Boeing School embraces:

1. Small classes—17 modern shops and laboratories—U. S. Govt.-approved in all departments. 2. Building, testing, repairing and assembling everything from radio equipment to finished planes. 3. Actual instrument flying under the hood in an aeroplane—also in the School's Link trainer from the very start of training, and training with heavy commercial planes—six different types including the modern multi-engine transport. 4. Learning by sight and by touch every part of modern aeronautics.

BOEING SCHOOL
OF AERONAUTICS

A DIVISION OF UNITED AIR LINES

5110, Hangar No. 5, Airport, Oakland, Calif.

In a few months we shall probably need the following personnel. Please send us brief biographies of men likely to be available then.

Name..... Company.....

Address.....

New Defense Awards Total \$490,139,525

\$355,007,267 For Engines, \$135,132,258 for Aircraft in War, Navy Contracts; Martin Believed to Hold Largest U. S. Plane Order Ever Placed

ANOTHER big step in the aircraft and engine procurement programs of the Navy and War Depts. was taken during the last fortnight as contracts for \$490,139,525 worth of national defense needs were placed with six manufacturing concerns.

Largest of the orders went to Ford Motor Co. at Dearborn, Mich., for 4,000 Pratt & Whitney engines to be manufactured under a \$122,323,020 contract. The engines will be produced in a new assembly plant which Ford is building at a cost of approximately \$14,500,000.

Wright Aeronautical Corp. at Paterson, N. J., received two engine contracts from the War Dept., one for \$119,070,920 and another for \$11,436,042. Part of the orders will be allocated to the Navy under the policy announced by the War Dept. on Aug. 30, whereby the Army will deal exclusively with Wright for engines for the combined Army and Navy requirements.

Likewise, Pratt & Whitney Aircraft Division of United Aircraft Corp. at East Hartford, Conn., received engine orders from the Navy Dept. amounting to \$59,490,704 and \$41,886,581. It is believed that part of these orders will be allocated to the Army under a policy whereby the Navy will deal with Pratt & Whitney for engines for both governmental departments. (AMERICAN AVIATION, Sept. 15).

Largest Aircraft Order?

Probably the largest order ever placed with a U. S. Aircraft manufacturer was received from the Navy by Glenn L. Martin Co. at Baltimore, Md., for between 500 and 600 patrol bombers. The order amounts to \$106,125,396.33. New contract will necessitate almost immediate expansion of Martin's Middle River factory to nearly twice its present size. An entirely new factory unit is contemplated.

Additional aircraft orders went to Vought-Sikorsky Aircraft Division of United Aircraft Corp., Stratford, Conn., and Vultee Aircraft Inc., Downey, Cal. The former, a Navy contract, totals \$28,679,070. Types, delivery schedules and other details were withheld. The latter, a War Dept. contract, is believed to cover aircraft and parts.

Budd Begins Construction Of Stainless Steel Wings

Budd Manufacturing Co., Philadelphia, Pa., has begun work on its first order for stainless steel airplane wings. The wings are being made with the company's patented "shotweld" process which takes the place of rivets.

In addition to the order now in production for an undisclosed airplane company, Budd is planning a wing set of its own which would be adaptable for mass production.

Lockheed Places Order

An order for more than a quarter-million dollars worth of d-c Selsyn aircraft instruments has been placed with General Electric Co., Schenectady, N. Y., by Lockheed Aircraft Corp., Burbank. The instruments, which will be used in the Lockheed P-322 interceptors, indicate engine conditions as well as position of landing gear and flap through the use of the d-c self-synchronous motor.

Fire Damages Waco Plant

Combustion among oil rags in a paint room was believed by firemen to have caused the fire at Waco Aircraft Co., Troy, O., Oct. 31, with estimated \$10,000 damage to plant and plane parts. Four completed planes were wheeled to safety. Waco is producing 21 trainers weekly for the Army Air Corps.

Late Defense Contracts

Engines

FORD MOTOR CO., Dearborn, Mich.	
4,000 Pratt & Whitney engines (War Dept.)	\$122,323,020.00
WRIGHT AERONAUTICAL CORP., Paterson, N. J.	
Radial aircooled engines (War Dept.)	119,870,920.00
PRATT & WHITNEY DIV., United Aircraft Corp., East Hartford, Conn., engines (Navy Dept.)	59,490,704.00
PRATT & WHITNEY DIV., United Aircraft Corp., East Hartford, Conn., engines (Navy Dept.)	41,886,581.00
WRIGHT AERONAUTICAL CORP., Paterson, N. J.	
War Dept. order for War and Navy engines	11,436,042.00
Total	\$355,007,267.00

Aircraft

GLENN L. MARTIN CO., Baltimore, Md.	
500 to 600 patrol bombers (Navy Dept.)	\$106,125,396.33
VOUGHT-SIKORSKY AIRCRAFT DIV., United Aircraft Corp., Stratford, Conn., airplanes (Navy Dept.)	28,679,070.00
VULTEE AIRCRAFT INC., Downey, Cal.	
Airplanes and parts (War Dept.)	327,792.00
Total	\$135,132,258.33
GRAND TOTAL	\$490,139,525.33

St. Louis Aircraft Corp.

St. Louis Aircraft Corp., subsidiary of St. Louis Car Co., 8800 N. Broadway, St. Louis, Mo., recently was reported to be at a standstill pending receipt of orders for more trainers from the Army. Company built 14 primary trainers under last year's experimental program, the ships now being used by Parks Air College. N. L. Rehnquist, vice-president, said the company is equipped for almost unlimited expansion if the need arises.

Over 400 Trainers Delivered For Canadian Pilot Program

Over 400 of the 808 Fleet and De Havilland elementary trainers required under the joint air training plan have been delivered to the Canadian Air Force, according to C. D. Howe, Minister of Munitions and Supply.

Deliveries of the Trainers are being made at the rate of over 100 monthly, and completion of the full quota is expected by the end of January.

Monocoupe Sales Program

Monocoupe Aeroplane & Engine Sales Corp., New York and Orlando, Fla., is organizing a sales program to include advertising campaign in trade papers and magazines, Kotula Advertising, New York, is handling the account.

Fire at Aircraft Industries

Fire in the parts cleaning room of Aircraft Industries Corp., Glendale, Cal., Oct. 26, caused an estimated \$5,000 property loss.

Howard Trainer Into Production



The new Howard DGA-125 transition trainer will go into production at Howard Aircraft Corp., Chicago, Ill., this month for the Civilian Pilot Training Program. The plane is of low-wing design in order that progression from training ship to high-speed pursuit and bombing planes may be more easily made, company officials declared.

Powered by a 125-hp. radial Warner Scarab-Series 50 engine, the trainer has a maximum speed of 118 mph.; cruising speed, (75% power) 108 mph.; landing speed, 50 mph.; cruising range, 365 miles; endurance, (75% hp.) 3 1/4 hrs.; climb 1st minute after take-off, 800 ft.; climb to 5,000 ft., 9 1/4 minutes; take-off run, 650 ft.; and service ceiling, 13,500 ft. With an empty weight of 1,350 lbs., the plane carries a useful load of 607 lbs.

The trainer, designed for economy in

operation, will have replaceable wing tips. Safety is featured in the action of the hydraulic brakes on the fixed-type landing gear which is equipped with "spring-draulic" shock absorbers. The tail wheel is steerable from the pedals in the cockpits to prevent ground looping when landing and to improve control when taxiing. Also in the interest of safety, the engine accessory compartment and entire cockpit are metal clad, and the fuselage aft of the cockpit is of chrome molybdenum tubing, fabric-clad.

The plane measures 34 ft. in wing span and 26 1/2 ft. in length, with an average overall height of 7 ft. 3 in. Both front and rear cockpits are supplied with instrument panels carrying air speed indicator, compass, altimeter, oil pressure gage, tachometer and oil temperature gage.

EDO
FLOATS

EDO AIRCRAFT CORP.

Edo builds Floats, Hulls, and all types of fabricated sheet metal parts

240 2ND ST., COLLEGE POINT, N.Y.

TAKE YOUR PLACE IN AVIATION

Beside
these fellows

—they are building famous fighting planes, and are ALSO building substantial futures for themselves. These are Aero (TI)-trained men. You would be proud to step into aircraft work beside them. You would be proud to have won the technical knowledge and practical ability Aero (TI) demands that its graduates possess—to assure a sound start in Aviation. You would be confident, too, of your broad, thorough training as a means of steady advancement and security in a great and growing industry. Hundreds of men now in Aviation are profiting from their Aero (TI) training. Find out about it NOW.



EXECUTIVE BOARD

ROBERT E. GROSS, President, Lockheed Aircraft Corporation
JOHN E. NORTHCROP, President, Northrop Aircraft, Inc.
C. A. VAN DUSEN, Vice-Pres., Consolidated Aircraft Corporation

AERO INDUSTRIES TECHNICAL INSTITUTE

5238 WEST SAN FERNANDO ROAD, LOS ANGELES, CALIFORNIA

Five Courses In AIRCRAFT MECHANICS and AERONAUTICAL ENGINEERING
Including 12 Month Aircraft Mechanics Course Approved by U. S. Civil Aeronautics Board

00
00
00
00
00
00
00

33
00
00
33
33

ram
i De
aired
have
Air
Adm-

being
thly,
a is

Sales
A., is
clude
apers
sing
t.

wing
tion
and-
pped
her.
the
rent
g to
to in
con-
spit
ft of
num

wing
an
in.
sup-
ying
etr.
oil

Plan

C-1

Con

Air

Wri

CUR

an
would
in that
manufa
the m
ground
bert F
will co
RFC al

The
announ
to Vul
Cal., c
constru

Curti
compos
or over
manufa
develop
and wil
tion.
will be
clearanc
tions.

The S
time lea
000 sq.
in St. L
frontage
170 ft.

The S
to hold
and carg
36-passe
ports of

Vultee
structed
gency P
oped jo
fense A
War Dep

Treasury
each ca
construc
the gove
of the e
five year

At the
tractor w
chase the
prearrang
alternati
sum. In
does not
erty, title
governme

Wright

Wright A
announced
erson, N.
and Printi
433,000 sq.
facture of
Producti
the plant

Co

Consolid
Diego, Cal.

SURCO

LEADING A
OF FA
TAPES
AIRCRAF

Plant Expansion, Production

C-W Building at St. Louis; War Dept. Award to Vultee

Consair, Northrop Air Associates and Wright Add to Plants

CURTISS-WRIGHT on Oct. 26 announced in St. Louis that it would expand its airplane division in that city by building the largest manufacturing plant for aircraft in the middle west on its present grounds on the north edge of Lambert Field. Plant and equipment will cost about \$10,000,000 with the RFC aiding financing, it was said.

The War Dept. a few days later announced the award of a contract to Vultee Aircraft Inc. at Downey, Cal., calling for plant expansion construction totaling \$4,294,789.11.

Curtiss-Wright's new plant will compose more than 1,200,000 sq. ft. or over 27 acres of floor space. The manufacturing section of the new development will be 1,100 by 625 ft. and will be of one-story construction. Final assembly department will be 600 by 200 ft. with a ceiling clearance of 40 ft. free of obstructions.

The St. Louis division at the same time leased warehouse space of 30,000 sq. ft. at 5127-35 Delmar Blvd. in St. Louis. The building has a frontage of 100 ft. and a depth of 170 ft.

The St. Louis division is reported to hold orders for troop transport and cargo planes similar to the new 36-passenger Curtiss-Wright transports of the twin-engine type.

Vultee's new facilities will be constructed under terms of the Emergency Plant Facility contract developed jointly by the National Defense Advisory Commission, the War Dept., the Navy Dept. and the Treasury Dept. The company in each case will furnish funds for construction. Under the contract, the government will repay the cost of the expansion over a period of five years.

At the end of five years the contractor will have the option to purchase the property at cost less some prearranged rate of depreciation or, alternatively, at some negotiated sum. In the event the contractor does not choose to retain the property, title will be transferred to the government.

Wright Leases 433,000 Sq. Ft.

Wright Aeronautical Corp. on Oct. 30 announced it had leased the East Paterson, N. J., plant of National Dyeing and Printing Co., with a floor space of 433,000 sq. ft. for use in the manufacture of engine parts.

Production was expected to start in the plant this month.

Consair Holds Permit

Consolidated Aircraft Corp., San Diego, Cal., holds a new building per-

mit for a \$700,000 steel corrugated final assembly structure to be built at San Diego.

When dredging has reclaimed sufficient land on the western edge of Lindbergh Field, the company will erect the 720 by 360 ft. building and a sea-plane ramp adjoining it to launch patrol bombers now under production for the Navy and Britain.

Air Associates Builds

Air Associates Inc. will start construction soon of a \$200,000 one-story plant at Los Angeles Municipal Airport, Ray Acre, vice-president in charge of west coast operations, announced on Nov. 8. The expansion is the second move of the company in recent months.

New plant is the first unit of an extended building program, Acre said. Ten acres of land have been purchased which will provide room for still further expansion. Floor area will cover 50,000 sq. ft. and be divided evenly between manufacturing and warehousing. Capacity of present west coast operations will be doubled.

Northrop Awards Contract

Northrop Aircraft Inc. has awarded a contract for construction of a manufacturing plant at Hawthorne, Cal., estimated to cost \$450,000, it was learned on Nov. 5.

Plans provide for a concrete and steel structure, 300 by 540 ft.

Work Starts in Texas

James Stewart and Co. of New York City on Nov. 2 was awarded the contract for construction of the million sq. ft. factory of North American Aviation Inc. of Texas. It was announced by J. H. Kindelberger, president and managing director of North American Aviation Inc. and the Texas organization.

Work will begin immediately on the huge factory adjoining Hensley Field, an Army Reserve field situated between Dallas and Ft. Worth, Tex.

It is anticipated that the first Texas-built AT-6A advanced trainer will be completed in April.

Meanwhile, steel is now being erected for a 200,000 sq. ft. expansion of NA's Inglewood, Cal., factory, where 1,000,000 sq. ft. of floor area will be in use early in Jan. 1941.

By Mar. 1941, when all expansion now in progress is expected to be completed, the company will have increased its production area by more than 1,570,000 sq. ft., or 365%, over the 430,000 sq. ft. available on Jan. 1, 1940.

Rohr Will Employ 700

Peak production by the newly organized Rohr Aircraft Corp. will be under way within a few months at a new plant in Chula Vista, Cal., where 700 men will be employed. It was reported on Oct. 28.

Meanwhile, preliminary work on contracts in excess of \$750,000 for engine cowlings and nacelles has been started in a large San Diego warehouse, where 300 men will be on the payroll by Jan. 1. Harlan D. Fowler, vice-president and chief engineer, announced.

Timm Gets Subcontract

Timm Aircraft Corp. at Van Nuys, Cal., has received an order for \$969,516 worth of aircraft parts and accessories from Vultee Aircraft Inc., it was announced on Nov. 1.

Company officials also announced

Naugle Aircraft Tests Mercury



Naugle Aircraft Corp. at Latrobe, Pa., expects to have its new Mercury light plane in production not later than the spring of 1941 at a daily rate of not less than 10 planes and at a price under \$2,000. Powered by a Lycoming geared 75-hp. engine, the Mercury production model will be equipped with retractable landing gear, giving the craft a top speed of 155 mph. and a cruising speed of 138 mph.

Patents are now pending on the cantilever wing which is constructed of sheet dural formed into simple channels. Front and rear spars are interchangeable. The outer 30% of the wing panel is monospar corresponding to the fixed slot section. Metal aileron and metal flaps are used.

plans to triple the number of employees to rush deliveries.

Adel Area Ready Dec. 1

Construction of Adel Precision Products Corp.'s new plant, located in North Hollywood, Cal., is making rapid progress and the manufacturing area presently expected to be 36,000 sq. ft., nearly six times existing production area, is promised for delivery on Dec. 1. The office building will be completed shortly thereafter.

Company's manufacturing tools and equipment are daily being augmented by the receipt of new machine tools ordered early in the summer of 1940. Investment in land, building, machinery and equipment will exceed \$250,000 shortly after completion of the new building and installation of all new machine tools on order.

Company's October deliveries of \$85,000 were the largest in history and "it is confidently expected that succeeding months will show successive increases in sales." Gross sales aggregated \$318,000 for the first six months of the fiscal year to end Apr. 30, 1941.

Canadian Aviation Awards

Contracts of more than \$5,000 for aviation supplies awarded by Canadian Department of Munitions and Supply during fortnight ended Oct. 18 include: Aviation Electric Ltd., Montreal, Que., \$42,770, \$7,295 & \$5,925; Jas. W. Pyke & Co. Ltd., Montreal, Que., \$9,413 & \$9,413; Switlik Canadian Parachute Ltd., Montreal, Que., \$1,057,806; Canadian Westinghouse Co. Ltd., Ottawa, Ont., \$5,115, \$5,210 & \$5,350; Irvin Air Chute Ltd., Ottawa, Ont., \$21,530, \$21,530, \$8,243, \$8,243 & \$1,058,062; National Steel Car Corp. Ltd., Malton, Ont., \$10,324, \$6,001 & \$14,888; B. F. Goodrich Rubber Co. of Canada Ltd., Kitchener, Ont., \$59,072; S. & S. Aircraft Ltd., Winnipeg, Man., \$7,371; Noordduyn Aviation Ltd., Montreal, Que., \$5,448; DeHavilland Aircraft of Canada Ltd., Toronto, Ont., \$51,184.

Fuselage, mainly of dural, is of a new type of construction designed for easy assembly. Cabin width is 46 in.; door width, 40 in.

Landing speed without flaps is rated at 48 mph.; with flaps, 39 mph.; rate of climb, 1,200 ft./min.; range (16 gal. standard), 470 ml. Span is 36 ft.; overall length, 20 ft. 6 in.; overall height, 6 ft. 8½ in.; wing area, 123 sq. ft.; wing loading, 8.9 lbs./sq. ft.; power loading, 14.67 lbs./hp.

Naugle Aircraft was formed Dec. 5, 1939, and first test flight on the Mercury was made Aug. 3, 1940. Capt. Harry C. Naugle is president of the firm; Richard G. Naugle is vice president and chief engineer; Glenn F. Cook is secretary-treasurer.

Aviation Issue Distributed

Allegheny Ludlum Steel Corp., Pittsburgh, Pa., is distributing the aviation issue of "Steel Horizons" with articles on production by T. P. Wright and on Piper, Thompson Products personnel training program, Bell, United Aircraft, Roscoe Turner's school, TWA, Lockheed, United Air Lines, Stainless Steel, Eclipse Aviation, Ranger, Vultee, Douglas, Hydraulics in Modern Aircraft, Mackenzie Air Service, PCA, Solar, Consolidated, aerial cameras, Ryan, EAL, Boeing, Switlik parachutes and Western Air Express.

Maltby Co. in New Quarters

Edward D. Maltby Co., manufacturers of aircraft bearings, has announced removal of its quarters to 1718 S. Flower St., Los Angeles, Cal.

CLASSIFIED ADS

7¢ per word—minimum charge \$1.00—
Payable in advance

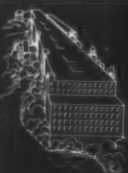
Young man, age 24, Netherlands Citizen, 6 years technical and commercial experience with well-known international airmen, having held junior executive position in United States for past 4 years, desires opportunity to make connections with any U. S. Airlines or firm to whom his experience might be of value.

Reply Box 319
AMERICAN AVIATION

AVIATION INSTITUTE OF TECHNOLOGY

Frank Ambrose, Pres.
Aircraft & Aircraft Engine Courses
C.A.A. Recognized N.Y. State Licensed
Dept. S, 36-01 35th Ave.
Long Island City New York

SUNCOCK MILLS
LEADING MANUFACTURERS
OF FABRIC AND
TAPES FOR THE
AIRCRAFT INDUSTRY



FLIGHTTEX



40 WORTH STREET, NEW YORK

Export Representative—
Aviation Equipment & Export,
Inc., 25 Beaver St., N.Y.
Cable Address—"Aviquipa"

WORLD'S PREMIER FLIGHTTEX AIRPLANE FABRIC

9-Months Aeronautic Exports Total \$221,479,961, Up 183% Over Year Ago

United States exports of aeronautic products in September totaled \$22,939,697, bringing the nine-month value to \$221,479,961 or 183% above the comparable 1939 period, the Motive Products Division, Dept. of Commerce, has reported. Largest purchaser was the United Kingdom taking \$15,164,825 worth in September and \$77,256,731 in the nine-month period. France practically eliminated from the market since the German invasion, spent \$75,463,921 for U. S. aeronautic products in the nine months.

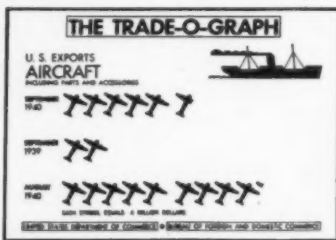
The September total, which included 284 airplanes valued at \$12,228,206, represented a 38.7% decline from August, when the United Kingdom alone received 278 planes for \$22,666,000. August shipments, however, were understood to have included a number of used military aircraft.

Nine Months' Shipments

In the January-September period, 13 countries each purchased more than a million dollars worth of U. S. aviation exports, spending together \$211,442,184 or 95.4% of the total value of shipments. These countries with the value of their purchases are:

United Kingdom	\$77,256,731
France	75,463,921
Canada	19,858,470
Australia	11,594,257
China	6,364,771
Sweden	5,076,513
Finland	4,206,714
Netherlands Indies	3,526,928
Turkey	2,262,964
Brazil	1,970,788
Norway	1,468,591
Union of S. Africa	1,241,338
Belgium	1,150,083

September shipments included 136 aircraft to the United Kingdom for \$8,453,000, and 68 to Canada for \$1,746,000. 256 engines to the United Kingdom for \$3,510,000 and 123 to Canada for \$534,000.



Exports of aeronautic products in September consisted of 284 aircraft valued at \$12,228,206; 441 engines for \$4,311,910; engine parts and accessories \$1,747,313; propellers and parts \$552,395; parachutes and parts \$78,019; instruments and parts \$821,988; other parts and accessories \$3,199,863.

September Exports

Twenty-two customers in September spent more than \$10,000 each for U. S. aviation products, as follows:

United Kingdom	\$15,164,825
Canada	3,423,500
China	938,341
Australia	849,216
Thailand	513,290
Brazil	395,859
Union of S. Africa	392,485
Netherlands Indies	342,922
Argentina	217,439
Turkey	161,770
Mozambique	71,008
Sweden	69,519
France	61,524
Colombia	59,063
Mexico	40,072
Peru	35,319
British South Africa	32,950
Finland	25,108
Burma	24,885
Egypt	22,492
Hongkong	21,191
Venezuela	16,480

NEW YORK STOCK EXCHANGE

	Week Ended Oct. 26	Week Ended Nov. 2
	High Low Change Sales	High Low Change Sales
American Airlines	62 59% - 1/4 4,900	63 1/4 60 +1 1/4 10,300
Aviation Corp.	4 1/4 - 1/4 14,700	5 1/4 4 1/4 + 1/4 28,800
Bendix Aviation	31 3/4 30% + 1/4 8,300	33 3/4 30% + 2 1/4 21,200
Boeing Airplane	16 1/4 15% + 1/4 11,200	17 1/4 15% + 1 1/4 37,500
Consolidated Aircraft	23 21% - 1/4 1,000	23 1/4 21 1/4 + 1 1/4 4,100
Continental Motors	3 3/4 3% - 1/4 9,300	3 3/4 3% + 1/4 12,900
Curtiss-Wright	7 3/4 7% - 1/4 23,800	8 3/4 7% + 1/4 32,500
Curtiss-Wright A	28 27 1/2 - 1/2 2,900	28 1/2 27 1/2 + 1/2 6,800
Douglas Aircraft	87 1/4 82 1/2 + 3 1/4 11,200	91 1/4 84 + 4 1/4 10,900
Eastern Air Lines	37 3/4 35 1/2 + 2 1/4 21,600	37 3/4 35 1/2 + 2 1/4 14,700
Ex-Cell-O	30 1/4 29 1/4 - 1/4 1,700	30 1/4 29 1/4 - 1/4 7,400
Grumman Air, Eng.	17 1/2 16 1/2 - 1/4 1,600	17 1/2 16 1/2 + 1/4 4,000
Lockheed Aircraft	29 27 1/4 - 1/4 9,100	30 1/4 27 1/2 + 2 1/2 28,100
Glenn L. Martin	32 1/4 30% - 1/4 11,600	33 1/4 30 1/2 + 2 1/2 21,100
Natl. Aviation Corp.	11 10% - 1/4 1,300	11 1/4 10% + 1/4 2,400
N. American Aviation	17 1/4 16% - 1/4 6,400	18 1/4 16% + 1/4 22,100
Pan American Airways	16 1/4 15 1/2 + 1/4 11,700	17 1/4 15 1/2 + 1 1/4 27,000
Sperry Corp.	41 1/4 40% + 1/4 5,400	43 1/4 41 1/4 + 2 1/4 11,600
Square D Co.	35 34 - 1/4 4,700	34 3/4 33 1/4 - 1/4 3,400
Thompson Products	35 33 1/4 + 1/4 2,000	35 32 1/4 - 1/4 2,000
TWA	18 1/4 17 1/4 + 1/4 6,600	19 18 1/4 - 1/4 3,400
United Aircraft	40 39 + 1/4 7,700	43 39 1/2 + 3 1/2 20,000
United Air Lines	19 1/4 17 1/2 + 1/4 27,400	19 1/4 18 1/2 + 1/4 18,900
Wright Aeronautical	98 96 - 2 50	105 97 + 5 180

NEW YORK CURB EXCHANGE

	Week Ended Oct. 26	Week Ended Nov. 2
	High Low Change Sales	High Low Change Sales
Aero Supply A	2 1/2 - 1/4 700	2 1/2 2 1/4 + 1/4 2,200
Aero Supply B	5 1/2 5 1/2 - 1/4 100	5 1/2 5 1/2 - 1/4 1,300
Air Investors	2 1/4 2 1/4 - 1/4 22 1/2	2 1/4 2 1/4 + 1 1/4 100
Air Investors cv pf	2 1/4 2 1/4 - 1/4 2 1/4	2 1/4 2 1/4 + 1 1/4 8,100
Air Investors war	2 1/4 2 1/4 - 1/4 1,300	2 1/4 2 1/4 + 1 1/4 2,500
Aviation & Transp.	5 1/2 4 1/2 - 1/4 1,900	5 1/2 4 1/2 + 1 1/4 3,800
Beech Aircraft	21 20 - 1/4 700	21 1/2 20 1/2 + 1 1/4 500
Bell Aircraft	4 3 1/4 + 1/4 500	4 3 1/4 + 1 1/4 7,900
Bellanca Aircraft	5 1/2 5 1/2 - 1/4 900	5 1/2 5 1/2 - 1/4 1,400
Breeze Corps.	9 1/4 9 1/4 - 1/4 200	9 1/4 9 1/4 + 1 1/4 3,200
Brewster Aero	6 1/2 6 1/2 - 1/4 1,100	6 1/2 6 1/2 + 1 1/4 1,100
Canadian Colonial	8 1/4 8 1/4 - 1/4 500	8 1/4 8 1/4 + 1 1/4 5,800
Fairchild Aviation	4 1/4 4 1/4 - 1/4 1,400	4 1/4 4 1/4 + 1 1/4 5,600
Fairchild Eng. & Air	14 1/4 13 1/4 + 1/4 4,400	14 1/4 13 1/4 + 1 1/4 200
Irving Air Chute	16 1/4 15 1/4 + 1/4 500	16 1/4 15 1/4 + 1 1/4 1,300
Penn-Central Airlines	5 1/2 5 1/2 - 1/4 100	5 1/2 5 1/2 + 1 1/4 400
Republic Aviation	2 1/4 2 1/4 - 1/4 800	2 1/4 2 1/4 + 1 1/4 1,300
Roosevelt Field	8 1/4 8 1/4 - 1/4 100	8 1/4 8 1/4 + 1 1/4 400
Ryan Aeronautical	4 1/4 4 1/4 - 1/4 11,900	4 1/4 4 1/4 + 1 1/4 7,400
Vultee Aircraft	4 1/4 4 1/4 - 1/4 11,900	4 1/4 4 1/4 + 1 1/4 7,400
Waco Aircraft	4 1/4 4 1/4 - 1/4 11,900	4 1/4 4 1/4 + 1 1/4 7,400
Western Air Express	4 1/4 4 1/4 - 1/4 11,900	4 1/4 4 1/4 + 1 1/4 7,400

Stock Comments

Recent Aviation Strength Suggests Nearness of an Important Swing

By PHILIP P. FRIEDLANDER
Chart Data by Wyckoff Associates Inc.

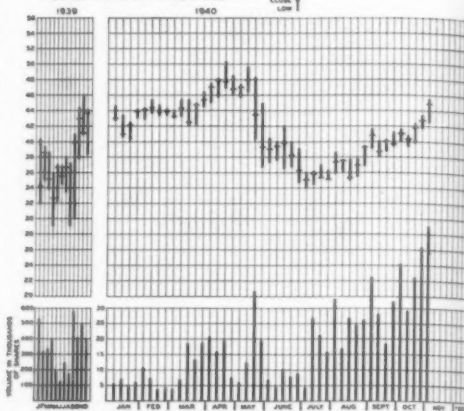
The stock market, imitating the 1929 and 1937 activity, started a forward move that has brought joy again to Wall and Broad Streets. The explanation of why securities should suddenly swirl forward, when, for several months they have remained in the doldrums, despite the accelerated pace of industrial activity, incorporates the whole theory of technical procedure. It would be a rather simple task if a magic hand by touching buttons could cause stock prices to run up at the same time that our industries are enjoying vigorous prosperity. It is this spread that makes it possible for close observers to find opportunities in the market-place. In due course, it is well to remember, there will be a point when stock prices will truly reflect prevailing conditions.

Too often it is said that the uncertainties today mean a different type of market. But in reality, stock prices behave in the same way, and charts record a picture similar to that given in more normal markets. All groups do not move simultaneously. This is accentuated by the disjointed economy caused by the World War. It is easy to recall that for a long time stocks of the steel companies failed to respond to the high production figures and the anticipated good profits. But before long this group came into its own, expressing the prosperity for this particular industry.

The tremendous backlog of orders for the shipyard companies failed until recently to attract buyers for these securities. It is at this writing that the market prices of these securities are beginning to appraise properly what is transpiring in that industry. Likewise, aviation securities acted imperviously to the news background and their market performance disgusted holders of these securities. The expansion program failed to create any particular interest in this group.

Even Standard Statistics recent survey showing that the manufacturing aviation companies would now be in a position to turn out \$55,000,000 worth of business per month, as compared with \$45,000,000 three months ago failed to stimulate excessive interest in this group of securities. It always has been contended by this column that the market is telling you a story even in the dull and dreary days of disinterest. It was stressed that aviation securities were being accumulated and

WEEKLY AVIATION AVERAGES



that technical signs indicated that a major swing was not far away. It was further stated that in due course the aviation averages would test the old highs of 50.32. The recent action of these stocks appears to justify our contention and optimism.

This long and dreary period takes place inevitably before a major swing. The preparation move is the forerunner of something big. Even when the aviation averages sold down to 34.06, during the week of July 6, it was our feeling that this represented a technical shake-out, and that the line at 39.41 would be the base for the major swing.

The general market experienced such a terminal shake-out a day after election. At that time, a selling wave came in, that presaged the beginning of a big downward move, but the following day, stock prices recovered, made up for their losses for the day before, and then on big volume, spurred forward. The story given out for this move was that the Secretary of the Treasury, in asking for a larger internal debt limitation, had set off the sparks of inflation. Regardless of what excuse was given, the fact that the market had broken through into new high grounds increased the probabilities that a major swing upward had begun.

It will be only certain groups that will enjoy this new market vitality. This column feels that the aviation stocks will be among the favorites.

At the present writing the aviation averages are 45.47 and should be extended to 48. It is at this level that a new line should be formed. Indications are that the averages will finally hit 65 before the move is completed.

It is on the basis of these chart studies that we believe small reactions should be used to purchase the manufacturing units of the aviation companies and the airline securities.

743 Planes Shipped by U. S. to British in First Year of War

U. S. shipments of aeronautic products to Great Britain during the first year of the war, ending Sept. 1, 1940, totaled \$72,163,000 and included 743 aircraft for \$53,177,000, Secretary of Commerce Jesse H. Jones reported Oct. 24. British purchases of all types of U. S. goods during the period amounted to \$780,000,000, some 57% higher than the \$497,250,000 for the comparable 12-months ended Sept. 1, 1939.

Peak month for plane deliveries was August when 278, or more than one-third of the year's total, were received by the British. Only two aircraft were shipped to Britain in March, and in Oct. 1939 none were delivered. As recently as last May, the British received

only 19 aircraft from U. S. manufacturers.

Month-by-month breakdown of U. S. plane deliveries to Great Britain during the first year of the war follows:

	No.	Value
Sept., 1939	34	\$2,961,000
October	0	0
November	4	347,000
December	53	2,870,000
Jan., 1940	41	2,801,000
February	19	1,649,000
March	2	8,000
April	23	1,130,000
May	19	1,780,000
June	97	4,200,000
July	173	12,777,000
August	278	22,000,000
Total	743	\$53,177,000

Air Investors Changes Address
Air Investors Inc. has announced a change in address from 24 Broad St. to 11 Wall St., New York.

Vought
airplanes
Glenn

Moore
Corporation
Morris
\$137,400
Mishaw
\$152,100
Hood
Corporation
Magna
(Air Corp)
Air As
Corporation
Goody
\$65,196
(Strach
(Air Corp
Thoma
(Navy)
Lycom
\$103,535
Pioneer
drift sig
Kolima
sights, \$4
Standa
gasoline
Bird-W
Leach
Genera
(Air Corp
Goody
\$2,886,517
Hayes
(Air Corp
Bendix
brake as
Charles
(Air Corp
Cambr
\$194,489
Blackh
(Air Corp
Hamilt
10/17, pr
Americ
\$44,713
Weston
\$79,440
(United
Sperry
\$32,036
U. S.
Pioneer
& trans
(Air Corp
(Air Corp
Mannin
gages, \$1
Pioneer
pressure
Kolima
Moore
\$58,500
Aerial
sembles,
Lockhe
\$352,508
Ryan
(Air Corp
Lycom
for engin
Jacobs
(Air Corp
Lite M
Prest-C
\$162,380
Pollack
Corpor.
H. Cole
Standa
\$132,025
Elk Be
Penzol
Electric
\$552,224
Switlik
\$42,187
Intern
Corpor.
E. A. I
Pratt
engines i
Cocodr
Duplex
Pioneer
climb in
Kolima
Indicator
Weston
meters, 4
Walter
check v
Lufkin
\$42,644
Breeze
Hamilt
10/5, ma
Stearns
parts, \$3
Curtiss
assembl

GOVERNMENT CONTRACTS

Awards of \$25,000 and Over

Release Date Shown

AIRCRAFT

Vought-Sikorsky Aircraft Div., United Aircraft Corp., Stratford, Conn., 10/26, airplanes, \$28,679,070 (Navy).
Glenn L. Martin Co., Baltimore, Md., 11/1, airplanes, \$106,125,396 (Navy).

MISCELLANEOUS

Moore Eastwood & Co., Dayton, O., 10/11, gun mount assemblies, \$85,050 (Air Corps).
Morris P. Arnoff, T.B.A. Arnoff Shoe Co., New York, N. Y., 10/11, flying shoes, \$37,400 (Air Corps).
Mishawaka Rubber & Woolen Mfg. Co., Mishawaka, Ind., 10/11, flying shoes, \$52,100 (Air Corps).
Hood Rubber Co. Inc., Watertown, Mass., 10/11, flying shoes, \$207,225 (Air Corps).
Magnaflex Corp., Chicago, Ill., 10/14, magnetic inspection apparatus, \$180,962 (Air Corps).
Air Associates Inc., Garden City, N. Y., 10/14, stand assemblies, \$85,550 (Air Corps).
Goodyear Aircraft Corp., Akron, O., 10/14, envelope for non-rigid airship, \$65,196 (Navy).
Strachan Skyways Inc., Savannah, Ga., 10/14, aircraft engine fuel, \$120,000 (Air Corps).
Thomas A. Edison Inc., West Orange, N. J., 10/14, engine gage units, \$159,792 (Navy).
Lycoming Div., Aviation Mfg. Corp., Williamsport, Pa., 10/15, airplane engines, \$670,539 (War).
Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 10/15, horizontal drift sights, \$173,394 (Navy).
Kollman Instrument Div., Square D Co., Elmhurst, N. Y., 10/15, vertical drift sights, \$657,580 (Navy).
Standard Oil Co. of New Jersey, New York, N. Y., 10/15, fuel oil & aviation gasoline, \$612,150 (Navy).
Bird-White Corp., Chicago, Ill., 10/16, pump assemblies, \$43,645 (Air Corps).
Leece-Neville Co., Cleveland, O., 10/16, generator assemblies, \$91,872 (Air Corps).
General Electric Co., Schenectady, N. Y., 10/16, generator assemblies, \$1,138,170 (Air Corps).
Goodyear Tire & Rubber Co. Inc., Akron, O., 10/17, wheel & brake assemblies, \$2,886,517 (Air Corps).
Hayes Industries Inc., Jackson, Mich., 10/17, wheel & brake assemblies, \$613,629 (Air Corps).
Bendix Products Div., Bendix Aviation Corp., South Bend, Ind., 10/17, wheel & brake assemblies, \$43,615 (Air Corps).
Charles Engelhard Inc., Newark, N. J., 10/17, indicator assemblies, \$180,905 (Air Corps).
Cambridge Instrument Co. Inc., New York, N. Y., 10/17, indicator assemblies, \$194,480 (Air Corps).
Blackhawk Mfg. Co., Milwaukee, Wis., 10/17, airplane jack assemblies, \$178,815 (Air Corps).
Hamilton Standard Propellers Div., United Aircraft Corp., E. Hartford, Conn., 10/17, propeller hubs & blades, \$33,021 (Navy).
American Optical Co., Southbridge, Mass., 10/18, goggles, frames & lenses, \$44,713 (Navy).
Weston Electrical Instrument Corp., Newark, N. J., 10/18, indicator assemblies, \$79,440 (Air Corps).
United States Gauge Co., New York, N. Y., 10/18, switches, \$70,000 (Air Corps).
Sperry Gyroscope Co. Inc., Brooklyn, N. Y., 10/18, strobometric machines, \$32,036 (Air Corps).
U. S. Gauge Co., New York, N. Y., 10/18, altimeters, \$40,400 (Navy).
Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 10/18, indicators & transmitters, \$651,946 (Navy).
Air Associates Inc., Garden City, N. Y., 10/19, aircraft mooring kit, \$166,972 (Air Corps).
Manning Maxwell & Moore Inc., Bridgeport, Conn., 10/19, manifold pressure gages, \$146,500 (Navy).
Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 10/19, manifold pressure gages, \$127,031 (Navy).
Kollman Instrument Div., Square D Co., Elmhurst, N. Y., 10/19, manifold pressure gages, \$37,473 (Navy).
Moore Eastwood & Co., Dayton, O., 10/21, gun mounting post assemblies, \$58,500 (Air Corps).
Aerial Machine & Tool Corp., New York, N. Y., 10/21, gun mounting post assemblies, \$53,400 (Air Corps).
Lockheed Aircraft Corp., Burbank, Cal., 10/21, maintenance parts for airplanes, \$332,508 (Air Corps).
Ryan Aeronautical Corp., San Diego, Cal., 10/21, modification of airplanes, \$62,260 (Air Corps).
Lycoming Div., Aviation Mfg. Corp., Williamsport, Pa., 10/21, maintenance parts for engines, \$84,515 (Air Corps).
Jacobs Aircraft Engine Co., Pottstown, Pa., 10/21, maintenance parts, \$77,166 (Air Corps).
Lite Mfg. Co., New York, N. Y., 10/21, tow target assemblies, \$450,200 (Air Corps).
Prest-O-Lite Battery Co. Inc., Indianapolis, Ind., 10/21, aircraft storage batteries, \$162,380 (Air Corps).
Pollack Mfg. Co., Arlington, N. J., 10/21, armament equipment, \$237,500 (Air Corps).
E. Cole Co., Columbus, O., 10/21, armament equipment, \$112,000 (Air Corps).
Standard Oil Co. of California, San Francisco, Cal., 10/21, aircraft engine fuel, \$132,025 (Air Corps).
Elk Refining Co., Charlestown, W. Va., 10/21, lubricating oil, \$74,121 (Air Corps).
Penzell Co., Oil City, Pa., 10/21, lubricating oil, \$55,276 (Air Corps).
Electric Storage Battery Co., Philadelphia, Pa., 10/21, aircraft storage batteries, \$552,224 (Air Corps).
Switlik Parachute & Equipment Co., Trenton, N. J., 10/22, tow target assemblies, \$42,187 (Air Corps).
International Engineering Inc., Dayton, O., 10/22, stand assemblies, \$65,022 (Air Corps).
E. A. Kinsey Co., Cincinnati, O., 10/2, engine lathes, \$301,173 (Air Corps).
Pratt & Whitney Div., Niles-Bement-Fond Co., West Hartford, Conn., 10/2, engine lathes, \$204,932 (Air Corps).
Codeco, Newark, N. J., 10/4, receiving equipment, \$29,083 (CAA).
Duplan Silk Corp., New York, 10/5, parachute silk, \$43,274 (Navy).
Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 10/5, aircraft climb indicators, \$279,225 (Navy).
Kollman Instrument Div., Square D Co., Elmhurst, N. Y., 10/5, aircraft climb indicators, \$194,616 (Navy).
Weston Electrical Instrument Corp., Newark, N. J., 10/5, ammeters and voltmeters, \$72,726 (Air Corps).
Walter Kidde & Co. Inc., New York, N. Y., 10/5, control panel assemblies, check valve assemblies, cylinder assemblies, etc., \$37,065 (Air Corps).
Lufkin Rule Co., Saginaw, Mich., 10/5, combination sets and thickness gages, \$42,844 (Air Corps).
Breeze Corp. Inc., Newark, N. J., 10/5, aircraft flowmeters, \$355,805 (Navy).
Hamilton Standard Propellers Div., United Aircraft Corp., E. Hartford, Conn., 10/5, maintenance parts, \$104,832 (Air Corps).
Steamer Aircraft Div., Boeing Airplane Co., Wichita, Kans., 10/5, maintenance parts, \$305,236 (Air Corps).
Curtiss Propeller Div., Curtiss-Wright Corp., Clifton, N. J., 10/5, propeller assemblies, \$203,659 (Air Corps).

McCauley Steel Products Co., Dayton, O., 10/5, propeller assemblies, \$308,880 (Air Corps).
Air Cruisers Inc., Clifton, N. J., 10/5, cylinder assemblies, \$252,797 (Air Corps).
Independent Engineering Co. Inc., O'Fallon, Ill., 10/5, cylinder assemblies, \$145,800 (Air Corps).
Walter Kidde & Co. Inc., New York, N. Y., 10/5, cylinder assemblies, \$127,907 (Air Corps).
Keuffel & Esser Co., Hoboken, N. J., 10/5, computer assemblies, \$53,382 (Air Corps).
H. D. Lee Mercantile Co., Kansas City, Mo., 10/5, flying suits, \$123,131 (Air Corps).
Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 10/5, signal assemblies, \$101,992 (Air Corps).
Rough Wear Clothing Co., New York, N. Y., 10/5, flying jackets, \$67,900 (Air Corps).
Aero Leather Clothing Co., Beacon, N. Y., 10/5, flying jackets, \$32,670 (Air Corps).
Kyrle Knitting Mills Inc., Unionville, Conn., 10/5, flying jackets, \$127,050 (Air Corps).
American Optical Co., Southbridge, Mass., 10/5, goggle and flying temple assemblies, \$149,141 (Air Corps).
Chas. Fischer Spring Co., Brooklyn, N. Y., 10/5, goggle and flying temple assemblies, \$80,233 (Air Corps).
Aro Equipment Corp., Bryan, O., 10/5, propeller hub assemblies, \$100,672 (Air Corps).
Sperry Gyroscope Co., Brooklyn, N. Y., 10/5, indicator assemblies, \$208,850 (Air Corps).
Leece-Neville Co., Cleveland, O., 10/5, generators, regulators and switch relays, \$76,097 (Air Corps).
Service Tool & Engineering Co., Dayton, O., 10/5, testing sets, \$215,213 (Air Corps).
Socony-Vacuum Oil Co., New York, N. Y., 10/5, engine fuel, \$90,603 (Air Corps).
Barnard Aviation Equipment Co., Ashley, Pa., 10/5, bomb hoists, \$59,000 (Air Corps).
Aro Equipment Corp., Bryan, O., 10/5, hose and valve assemblies, \$108,525 (Air Corps).
Folmer Graflex Corp., Rochester, N. Y., 10/5, ground cameras, \$136,873 (Air Corps).
Wright Aeronautical Corp., Paterson, N. J., 10/7, maintenance parts, \$1,042,866 (Air Corps).
Ranger Aircraft Engines Div., Fairchild Engine & Airplane Corp., Farmingdale, N. Y., 10/8, aircraft engines, \$196,725 (Air Corps).
Shell Oil Co. Inc., New York, N. Y., 10/8, aircraft engine fuel, \$101,700 (Air Corps).
Aero Supply Mfg. Co. Inc., Corry, Pa., 10/8, bomb release handle assemblies, \$25,300 (Air Corps).
Scintilla Magneto Div., Bendix Aviation Corp., Sidney, N. Y., 10/8, magneto assemblies, \$32,000 (Air Corps).
Bendix Products Div., Bendix Aviation Corp., South Bend, Ind., 10/9, brake & wheel assemblies, \$34,095 (Air Corps).
U. S. Gauge Co., New York, N. Y., 10/9, airspeed indicators, \$42,600 (Navy).
Fairchild Aviation Corp., Jamaica, N. Y., 10/10, stereoscopes, \$254,152 (War).
Crouse-Hinds Co., Syracuse, N. Y., 10/10, lamp assemblies & spare parts, \$48,140 (Air Corps).
Pump Engineering Service Corp., Cleveland, O., 10/10, air pumps, \$29,768 (Air Corps).
Banner Die Tool & Stamping Co., Columbus, O., 10/10, bomb racks, \$104,550 (Air Corps).
Barnard Aviation Equipment Co. Inc., Ashley, Pa., 10/10, gun mount assemblies, \$108,170 (Air Corps).
Wright Aeronautical Corp., Paterson, N. J., 10/11, aircraft engines, \$81,569,140 (War).
Iron Firearm Mfg. Co., Portland, Ore., 10/11, gun mount assemblies, \$85,645 (Air Corps).
Ohio Chemical & Manufacturing Co., Cleveland, O., 9/16, oxygen masks, plugs, hooks and other oxygen equipment, \$65,037 (Air Corps).
Switlik Parachute & Equipment Co., Trenton, N. J., 9/16, container assemblies for emergency parachute back-pads, \$53,820 (Air Corps).
Yale & Towne Manufacturing Co., Stamford, Conn., fuel transfer pumps, rotary motors, etc., \$81,233 (Air Corps).
R. R. Robertson, Chicago, Ill., 9/16, ground cameras, \$164,132 (Air Corps).
Meyer Construction Co., San Francisco, Cal., 9/20, temporary housing, Stockton Airport, \$118,836 (War).
Bendix Radio Corp., Baltimore, Md., 9/20, radio compasses, \$673,906 (War).
Tellepsen Construction Co., Houston, Tex., 9/20, emergency construction, Ellington Field, Tex., \$952,950 (War).
Watt & Sinclair, Palm Beach, Fla., 9/20, Air Corps shop building, Municipal Airport, Orlando, Fla., \$107,190 (War).
Bendix Products Div., Bendix Aviation Corp., S. Bend, Ind., 9/28, axles and wheels, \$141,269 (Navy).
Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., 9/28, starters, \$193,000 (Navy).
Aluminum Co. of America, Washington, D. C., 9/28, rivets, \$48,521 (Navy).
SKF Industries Inc., Philadelphia, Pa., 9/28, bearings, \$32,373 (Navy).
Air Cruisers Inc., Clifton, N. J., 9/28, life preserver vests and cylinders, \$49,500 (Air Corps).
Goodyear Tire & Rubber Co. Inc., Akron, O., 9/28, life preserver vests and cylinders, \$65,120 (Air Corps).
Hartzell Propeller Co. Div., Hartzell Industries, Inc., Piqua, O., 9/28, aluminum alloy propeller blades, \$44,000 (Air Corps).
Aircraft Appliance Co., Chicago, Ill., 9/28, engine warming cover assemblies, \$26,587 (Air Corps).
Hamilton Standard Propellers Div., United Aircraft Corp., E. Hartford, Conn., 9/28, propellers and blades, \$34,837 (Navy).
Hickok Electrical Instrument Co., Cleveland, O., 9/28, indicators, switches, etc., \$33,000 (Navy).
Lewis Engineering Co., Naugatuck, Conn., 9/28, indicators, switches, etc., \$41,580 (Navy).
Weston Electrical Instrument Corp., Newark, N. J., 9/28, indicators, switches, etc., \$34,180 (Navy).
Aircraft Engine Div., Continental Motors Corp., Muskegon, Mich., 10/1, spare parts for radial engines, \$69,082 (War).
Kollman Instrument Div., Square D Co., Elmhurst, N. Y., 10/1, aircraft compasses, \$85,811 (Navy).
Thompson Products, Inc., Cleveland, O., 10/1, fuel pumps, \$33,750 (Air Corps).
Fairchild Aviation Corp., Jamaica, N. Y., 10/2, aircraft cameras and parts, \$3,131,806 (Air Corps).
Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 10/2, oxygen regulator assemblies, \$2,300,967 (Air Corps).

UAWA Petition Denied

CIO United Automobile Workers of America have been found by NLRB to have insufficient numbers at North American Aviation Inc., Inglewood, Cal., to warrant hearing on union's petition for an election. UAWA had claimed a majority membership at the plant.

CIO Union Certified at Ryan

The National Labor Relations Board has announced the certification of UAW, Local No. 506, affiliated with the CIO, as the sole collective bargaining agency selected by a majority of the production and maintenance employees of Ryan Aeronautical Co., San Diego, Cal., following an election which showed a 354 to 273 margin in favor of the union.

Washington Financial Review

SEC Registration

Pennsylvania-Central Airlines
Pennsylvania-Central Airlines Corp. filed registration statement Oct. 24 covering 60,000 shares capital stock, \$1-par. Approximately \$230,000 of net proceeds were to be applied to purchase price, due Nov. 3 and 4, of two Douglas DC-3 aircraft and special equipment, or to repayment of temporary borrowings made for that purpose, balance to be added to company's working capital. "Corporation has made no definite plans" for raising funds required for additional new equipment to be delivered in 1941.

Eleven completely equipped DC-3's are on order for delivery March-July 1941 at cost of \$1,270,000, and four spare Wright G-102A engines for Mar. 1941 at \$38,208.

Company states that insurance coverage is believed sufficient to protect the carrier against any loss arising from actions which may be brought as result of recent accident.

Funded debt: Outstanding bank loan, \$1,084,000 principal at Oct. 22, 1940, with Chase National Bank is evidenced by three 4% installment promissory notes in respective unpaid principals of \$592,800, \$91,200, \$400,000, and dated Dec. 15, 1939, Dec. 19, 1939, and May 29, 1940, respectively. Loan is secured by chattel mortgage on equipment.

Authorized capitalization was increased Sept. 6, 1940, from 300,000 shares, \$1-par, to 500,000. Name of principal underwriter and public price of new issue will be filed by amendment. Issuer will reimburse underwriter \$2,500 against normal out-of-pocket expenses.

Current SEC Reports

Airplane Mfg. & Supply Corp.

Company reports that 44,590 of its \$1-par shares have been subscribed for by its stockholders at \$1 pursuant to rights which expired Oct. 16. In accordance with underwriting agreement covering 93,266 shares, G. Brashears & Co. now offers to public the remaining 48,676 at \$1.25, paying registrant \$1 therefor.

Vultee Aircraft Inc.

Upon issuance of 302,168 capital shares, \$1-par, to Aviation Mfg. Corp. for property and net assets of Stinson Aircraft Division and Barkley-Grow Aircraft Division of Aviation Mfg. Corp., Vultee will have outstanding 1,052,168 shares of 1,059,668 total authorized for issuance and 1,500,000 total authorized by incorporation certificate.

Financial Reports

LEHMAN CORP.—Report for year ended June 30 shows net profit of \$858,240, with interest and dividends earned \$2,752,247, operating expenses \$581,254, net income before provision for federal income taxes \$2,170,993, after provision \$2,115,993.

Balance sheet at June 30: Assets \$67,483,361, including cash and receivables \$5,469,645, U. S. government obligations, average cost \$4,952,234, investments in securities, average cost \$56,026,922, investment in real estate corporation, average cost \$975,687, miscellaneous investments and advances \$58,483,361. Liabilities: dividend payable July 5, 1940, \$415,476, accrued liabilities \$175,705; capital stock, of an authorized 2,500,000, \$1-par shares, 2,086,894 out-

standing; capital surplus \$83,673,395 less 11,104 treasury shares; profit and loss account \$18,680,152.

AERONAUTICAL SECURITIES INC.—For nine-months ended Sept. 30 company reports net income of \$23,513 after federal income tax provision, against \$23,246 for calendar 1939. Cash dividends were \$11,560, expenses \$11,036, net profit on sales of portfolio securities computed on basis of specific certificate costs \$26,189. Balance sheet Sept. 30 shows assets \$864,921, including cash \$92,784, investments at market \$771,575. Liabilities include dividend payable Oct. 16, 1940, \$10,155; total surplus on basis of carrying investments at market quotations \$745,065.

GLENN L. MARTIN CO.—Deliveries of \$5,303,531 and net profit of \$523,493, after depreciation, state and federal income taxes at 24% are reported for quarter ended Sept. 30. This equals 48c each on 1,094,532 \$1-par common shares outstanding. Without provision for excess profits taxes, company earned \$4,798,981 or \$4.38 a share on sales of \$25,416,007 for nine months to Sept. 30.

Profit and loss items: Cost of goods sold \$4,258,066, depreciation of plant and equipment \$146,512, profit from operations \$898,950, income credits \$71,226, gross income \$970,177, provision for normal federal and state income taxes \$405,500.

ARO EQUIPMENT CORP.—In amendment to consolidated report for calendar 1939, company announces net sales of \$1,009,679 for period, net operating profit \$202,648, net profit before federal income tax \$204,071, net profit to surplus \$166,671. Balance sheet at Dec. 31, 1939, shows assets \$812,906, current \$489,179. Current liabilities \$102,587. Capital 156,918 shares, \$1-par, issued of an authorized 500,000. Surplus, paid-in \$85,234. Surplus from operations \$468,166.

AMERICAN AIRLINES INC.—Net profit for nine months 1940, \$1,556,849 against \$964,283 same period of 1939. Net income for three months ended Sept. 30, \$669,444.

WESTERN AIR EXPRESS CORP.—Net earnings of \$183,341 before federal income taxes, \$141,932 after deducting such taxes, are reported for first nine months of 1940. Mail revenue during period totaled \$607,797, passenger revenue \$569,628, express revenue \$36,148.

NORTH AMERICAN AVIATION INC.—Unaudited consolidated net profit for nine months, of 1940, was \$3,338,538, after estimated federal income and excess profits taxes. Tax legislation enacted during 1940 had effect of reducing net income for nine months by approximately \$1,700,000, equal to about 30c a share. Sales totaled \$24,305,575.

Employment is now approximately 7,000 with annual payroll at current rates \$14,000,000. Number at Ingleswood plant is expected to reach 10,000 by end of year, while total number employees at Ingleswood and Texas plant will eventually reach 20,000-30,000.

EX-CELL-O CORP.—In nine months ended Sept. 30, net profit of \$1,387,727 was equal to \$3.49 a share, against \$530,514 in same 1939 period. Company expects to complete early next summer its \$3,000,000 expansion program increasing manufacturing area from present 230,000 sq. ft. to 335,000. Investment in fixed assets involved in purchase of new plant and remodeling will approximate \$1,700,000, with additional \$1,300,000 working capital likely to be required.

HARVILL AIRCRAFT DIE CASTING CORP.—Net profit of \$96,312 for nine months ended Sept. 30, before federal income and excess profits taxes. According to company earnings are not shown for substantial partial deliveries.

SQUARE D CO.—Report for nine months, 1940, shows net profit of \$1,263,002, after normal federal income

Exclusive

Current Figures on Backlogs, Production Areas and Employment

The following exclusive figures have been compiled by the staff of AMERICAN AVIATION ASSOCIATES and were gathered from numerous reliable sources. Backlog figures, in many cases, are estimates, and others, because of Army or Navy restrictions, are unofficial but are believed to be as accurate and as current as any on record:

Company	Backlog	Production Area Sq. Ft.	Employees
Adel Precision	\$750,000	36,000	.....
Beech	22,360,000	181,500	1,769
Bell	65,000,000	430,000	3,500
Bellanca	500,000	70,000	190
Boeing	184,000,000	1,400,000	67,000
Brewster	100,000,000	884,000	7,000
Cessna	11,000,000	225,000	600
Consolidated	235,000,000	1,900,000	12,275
Continental Motors	52,000,000	.....	3,000
Curtiss Aero	.....	765,000	9,000
Curtiss Propeller	.....	590,000	2,500
C-W St. Louis	.....	179,000	2,000
Douglas	350,000,294	1,500,000	18,053
Fairchild Aircraft	9,690,000	97,136	1,126
Fairchild Aviation	5,343,345	.....	.....
Fleetwings	.....	200,000	1,100
Grumman	20,010,818	.....	.....
Hardman Aircraft Products	700,000	.....	2,000
Harlow	.....	30,000	55
Kinner Motors	700,000	40,000	150
Lockheed	210,000,000	.....	12,258
Luscombe	100,000	42,000	371
Lycoming	9,100,000	380,000	1,150
Martin	322,255,396	1,250,000	12,887
Menasco	2,765,000	43,000	.....
Monocoupe	.....	22,500	83
North American	105,000,000*	740,000	8,548
Northrop	24,117,586	216,280	1,450
Piper	1,000,000	125,000	1,150
Porterfield	.....	52,000	150
Ranger Engines	7,500,000	100,000	300
Republic	68,000,000	228,000	2,600
Rohr Aircraft	750,000	.....	250
Starman	11,400,000	160,000	1,400
Stearman	19,020,211	205,000	1,300
Taylorcraft	372,000	13,468	347
Timm	1,047,639	.....	140
Vega	31,000,000	.....	2,207
Vultee (includes Stinson)	85,027,792	550,000	6,100
Waco	.....	98,960	697
Warner Engines	1,000,000	33,000	140
Wright Aero	356,306,962	2,733,000	14,000

* Does not include U. S. Govt. order totaling approximately \$111,000,000 on which final approved contracts have not been received.

and excess profits taxes, equal after dividend requirements on 20,000 shares of 5% preferred to \$2.82 each on 421,360 common shares, \$1-par. Company has acquired assets of Emmerich Optical Co., New York City, and will move machinery to one of Kollsman Instrument division plants.

DOUGLAS AIRCRAFT CO. INC.—Company reports for nine months ended Aug. 31, 1940, net profit of \$7,288,335, after charges and federal income taxes, equal to \$12.15 a share on 600,000 capital stock shares, compared with \$2,382,159 or \$3.97 a share for same period ended Aug. 31, 1939. Sales of \$45,430,274 are shown, of which \$6,124,552 was in fixed price contracts of U. S. government "on which profits, after deducting administrative expense, amounted to \$38,614, or a margin of less than 1%."

Consolidated balance sheet Aug. 31: Assets \$54,074,187, current \$515,747, cash \$32,718,533. Current liabilities \$31,574,931, reserves \$596,984. Capital surplus \$3,993,441; earned surplus \$11,908,830. Backlog of \$141,287,127, Aug. 31, included \$87,099,065 for foreign military craft and \$32,012,474 for commercial models. Unfilled orders at end of October totaled \$351,370,166.

Dividend

DOUGLAS AIRCRAFT CO. INC.—\$5 a share to be paid Nov. 20 on 600,000 shares outstanding to stockholders of record Nov. 9.

Chicago Pneumatic Appointments
Chicago Pneumatic Tool Co. has announced the appointment of P. J. Christy as manager of its Philadelphia, Pa., office. He succeeds A. M. Brown who has been transferred to Washington. D. C., as manager of the new branch recently opened there. Also announced was appointment of C. A. Diehl as manager of the Houston, Tex., office.

Firm to Market New Type Glue

U. S. Plywood Corp. will soon make available the first "one-part," plastic resin adhesive to consumers and industrial users. The new glue, "Weldwood," is a urea formaldehyde glue working by chemical action.

CHAPLINE HEADS BREWSTER CORP.

Executive Forces Expanded
Speed Production; Work is
Chairman of Board

Directors of Brewster Aeronautical Corp. in meeting at New York City, on Nov. 12 expanded the company's executive forces to speed production on more than \$100,000,000 in orders for the U. S. Navy and foreign governments by electing James Work, former president, as general manager, chairman of the board, and George F. Chapline, president and general manager, to succeed Work. Chapline had been vice president in charge of sales of Wright Aeronautical Corp.

Additional new officers are Dayton T. Brown, vice president in charge of experimental research and development, and William L. Smith, vice president in charge of materials. Smith resigned from Western Electric in mid-October to join Brewster. Until Aug. 20, 1940, he was director of air purchases for the British Purchasing Commission in New York City, a duty assumed in Dec. 1939 when WE granted him a leave of absence as contract engineer.

Aero to Make Parts, Tools

A new corporation for the manufacture of aircraft parts and power tools is Aero Corp., South Gate, Cal., which was organized by C. A. Herberts, founder in 1917 of Herberts Machinery Co. Officers and directors include Herberts as president; E. T. Melone, vice president; general manager; R. A. Livingston, secretary-treasurer, and H. L. Harlow, Max B. Harlow, D. N. MacConnell and W. J. Merrigan, directors.

Northwest Airlines, Inc.

COMMON STOCK

Descriptive Booklet on Request

THE MILWAUKEE COMPANY

135 West Wells Street
MILWAUKEE, WISCONSIN

Southward with **CYCLONES** in **THE GREAT SILVER FLEET**

EASTERN AIR LINES LAUNCHES NEW CYCLONE-POWERED DOUGLAS FLEET

THE GREAT SILVER FLEET links major Eastern and Mid-Western industrial centers with the increasingly important routes to Central and South America. This, together with new Mid-Western route extensions, is reflected in a 56% traffic rise in September over last year—an all-time monthly record. The annual Winter travel to the South will add its impetus to the greatest growth in EAL's history.

Current delivery of additional Douglas DC-3's and DST's, powered with Wright G-200 Cyclones, will double Eastern Air Lines' present fleet. Since the start of operations twelve years ago, Eastern has consistently specified Wright Aircraft Engines for its new equipment.

WRIGHT AERONAUTICAL CORPORATION

Paterson

New Jersey

A Division of Curtiss-Wright Corporation

EASTERN
Air Lines

FLY
IT PAYS TO



WRIGHT *Aircraft* **ENGINES**

vised
ment
staff of
merous
others
to be
employe

1,769
3,500
190
7,700
6,900
500
2,275
3,000
9,000
2,500
2,000
8,053
1,120
1,100
2,000
55
150
2,258
371
1,150
2,887
35
6,545
1,450
1,150
158
380
2,600
250
1,400
1,300
347
148
2,207
6,100
657
148
4,000
000,000

DS
CORP

ded to
k in
l
Aeronau
Newwa
the con
to spend
0,000,000
heavy an
electric
ent, au
of the
ne, pres
ger u
ad be
sales a
Dayton
charge
and de
Smith
materi
in Ken
rewriter
direct
British
in New
in De
a leave
neer.

ools
nagrine
tools
which
found
to. O
berts
reside
ington
Harvi
nel and

ABOUT THE SPRING EDITION



AT LAST there is a complete, concise and well arranged directory of all aeronautical interests in American Aeronautics. The editor has rendered a great service . . . It is a pleasure to join in what should be a unanimous approval. **JOURNAL OF THE AERONAUTICAL SCIENCES.**

Although I have just received it, your Directory has already become a most useful reference book in my office. **W. H. SCHWEBEL, Fairchild Engine & Airplane Corp.**

Without question, the best aviation directory ever compiled . . . It tells what, where and who with the flip of a page. **AVIATION WRITERS ASSOCIATION NEWSLETTER.**

I want to congratulate you on what will be to me and multitudes of others one of the most useful volumes of information. **R. W. HAM-BROOK, U. S. Office of Education.**

Anyone dealing with the aviation industry should not fail to have a copy of this publication. **COMMERCIAL AVIATION (Canada).**

By far the most complete and handy directory of aeronautical organizations and personnel that I have seen. I keep it at my desk for constant reference. **J. STORY SMITH, Pres., Jacobs Aircraft Engine Company.**

It is an extremely welcome addition to aviation publications and should be in the hands of all aeronautical industrialists. **AERONAUTICS (Great Britain).**

We wish to take this opportunity of complimenting you on the exceptionally fine compilation of these listings. **S. H. WEBSTER, Eclipse Aviation.**

Air-minded Americans everywhere will welcome this useful book. . . . It well supplies a growing demand.

NATIONAL AERONAUTICS.

I am very glad to have this directory, and am sure it will prove of assistance in my office and to other members of our organization. **E. E. WILSON, Pres., United Aircraft.**

Announcing the REVISED and ENLARGED FALL EDITION of **AMERICAN AVIATION** *Directory*

★ There is no need to tell you, if you've been using the Spring Edition, just what the DIRECTORY is or how many times a day you have occasion to refer to the copy on your desk.

★ But with this unprecedented expansion throughout the industry and the numerous resultant shifts in administrative functions, the Spring Edition is already so out of date that we have had to make between 1100 and 1200 changes in names, titles and addresses to properly show all changes which have occurred in the industry since April.

★ In addition to the many changes, we have solicited information from hundreds of organizations not listed in the first volume. We have had to add more than 100 new pages to the Fall Edition, and over 4500 new names have gone into the alphabetical index. Among the valuable new additions to the book are complete sections on . . . **CENTRAL AND SOUTH AMERICAN AIRLINES CANADIAN AND LATIN AMERICAN MANUFACTURERS, U. S. AIRLINES AND MANUFACTURERS IN PROCESS OF ORGANIZATION, FIXED-BASE OPERATORS AND LOCAL AIR SERVICES IN EVERY CITY AND STATE, MANUFACTURERS OF ALL TYPES OF PRODUCTION MACHINERY AND TOOLS, SUPPLIERS OF MANUFACTURING MATERIALS, AERIAL SURVEY AND PHOTOGRAPHY CONTRACTORS, CANADIAN AND LATIN AMERICAN GOVERNMENT OFFICIALS . . . and numerous others under virtually every classification of aviation production and service.**

★ No matter what type of personal or office reference file you have been keeping to maintain your contacts with the aviation industry . . . whether you're an airline president with no time to waste looking for correct initials and titles . . . or a sales executive with markets or potential markets to cultivate . . . or a school placement director wanting to put your boys across to the right men in the right companies . . . or just a fellow who wonders now and then what's become of some of the men he's known here and there along the line . . . Whatever you do and whatever your requirements, you'll find **AMERICAN AVIATION DIRECTORY** an indispensable aid and the most frequently used book on your desk.

★ AMERICAN AVIATION MAGAZINE ★ AMERICAN AVIATION DAILY ★ AMERICAN AVIATION DIRECTORY ★ AMERICAN AVIATION SERVICE BUREAU

AMERICAN AVIATION ASSOCIATES, INC.

Earle Building
Washington, D. C.

GENTLEMEN:

Please send us at once _____ copies of the revised and enlarged Fall Edition of **AMERICAN AVIATION DIRECTORY.**

☐ Payment Enclosed

☐ Please Send Bill

PURCHASE

ADDRESS

CITY and STATE

USE THIS FORM TO INSURE PROMPT
RECEIPT OF THE FALL EDITION

Price per copy . . . \$3.00. Discounts on five or more copies. (Note: If extra copies are to be sent to addresses other than the main office, please list and attach correct names and addresses.)

Lib
TH
ve
force
it is re
Dur
U. S.
force
The
been f
indust
pand
transp
merce
social
for na
A r
deman
enbac
be can
he est
planes
pilots
paying
emerg
we ma
Mea
merce
delive
in the
Oth
indust
air po
the ta
propos
Patter
to den
of feed
perime
perous
fornia
stops a
miles—
line ap
west K
are d
service
United
two ye